A comparative evaluation of the environmental impact assessment systems in the United Kingdom and developing countries in South-East Asia.

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A COMPARATIVE EVALUATION OF THE ENVIRONMENTAL IMPACT ASSESSMENT SYSTEMS IN THE UNITED KINGDOM AND DEVELOPING COUNTRIES IN SOUTH-EAST ASIA

by

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ABSTRACT

This thesis describes a comparative evaluation of the environmental impact assessment (EIA) systems in four countries, including the UK as a developed Western nation and Taiwan, Malaysia and Indonesia as examples of differing rapidly developing countries in South-East Asia. In order to carry out this evaluation, a conceptual framework for analysing an EIA system has been developed. This defined framework provides an uniform basis for examining the insights and effectiveness of the individual EIA systems. The study results showed that EIA has been implemented in the UK through secondary regulations. Guidelines on the EIA procedure are available. Nevertheless, public consultation prior to the submission of an environmental statement (ES) with a planning application is a recommendation only, rather than a statutory requirement. Post-EIA monitoring is required through planning conditions, but not defined in the EIA regulations. Formal appraisal of plans is required for local/structure plans and is undertaken informally for other plans. It was found that EIA implementation by various competent authorities has been inconsistent across the country. In Taiwan, various EIA general and technical guidelines are introduced. A formal requirement for EIA of government policies is included in the 1994 EIA Law. The procedure appears to be quite comprehensive with public participation at the early stage of EIA, i.e. scoping and public presentation/hearing, but not formal channels for appeals. EIA compliance monitoring and enforcement is conducted by an independent Task Force. However, the effectiveness of EIA implementation in practice still needs to be strengthened. Malaysia has devoted considerable effort to improving indigenous EIA capabilities through, for example, EIA training, developing an EIA tracking system and a central database of EIA reports. However, a number of aspects of EIA, including guidance availability, public involvement, EIA compliance monitoring and enforcement, and the effectiveness of implementation in practice, need to be strengthened. In Indonesia, the requirements for an EIA report are quite strict and clear. The linkage of EIA and spatial use management has been established since 1993. There have been considerable technical and financial inputs from Canada. However, aspects, such as guidance availability, public participation, EIA enforcement and implementation in practice, should be enhanced. Based on the study findings, an EIA Evaluation Model and a conceptual framework for a comprehensive EIA system have been developed. It is suggested that competent national authorities can apply the EIA Evaluation Model to identify the strengths and weaknesses of their EIA systems. The proposed conceptual framework for a comprehensive EIA system can be used as a reference model. Competent national authorities could, then, set out priorities and devote resources to overcome shortcomings and strengthen EIA effectiveness, so that the performance of the EIA systems can be improved.

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A.D.B.	Asian Development Bank
A.G.A.	Authorised government authority
Act 24/1992	Act of the Republic of Indonesia No.24 of 1992 "Spatial Use Management Act"
Act 4/1982	Act of the Republic of Indonesia No.4 of 1982 "Basic Provisions for the Management of the Living Environment"
BP	British Petroleum Company p.l.c.
CEPD	Council for Economic Planning and Development
CIDA	Canadian International Development Agency
DOE	Department of Environment
DOH	Department of Health
E.M.C.	Environmental Management Centre
EA	environmental assessment
EC	English County Council (referred to the UK EA survey only)
EC	European Community
ED	English District Council
EEZ	Exclusive Economic Zone
EIA	environmental impact assessment
EIA Directive	EC Directive 85/337/EEC
EIMA	Environmental Impact Management Agency
EIS	environmental impact statement
EL	English London Borough Council
EM	English Metropolitan District Council
EMDI	Environmental Management Development in Indonesia Project
EPA	Environmental Protection Administration
EPB	Environmental Protection Bureau
EQA of 1974	Environmental Quality Act, 1974
EQC	Environmental Quality Council
EQO of 1987	Environmental Quality (Prescribed Activities) Order, 1987
ES	environmental statement
GIS	Geographical Information Systems
GNP	Gross National Products
GR 29/1986	Government Regulation of the Republic of Indonesia No.29 of 1986 "Analysis of Environmental Impacts"
GR 51/1993	Government Regulation of the Republic of Indonesia No.51 of 1993 regarding Environmental Impact Assessment

HMIP	Her Majesty's Inspectorate of Pollution
IEE	Initial Environmental Evaluation
INREDEP	Integrated Regional Environmental Development Program
INTAN	National Institute of Public Administration Malaysia
JICA	Japan International Cooperation Agency
LPA	local planning authority
M.P.	Malaysian Plan
MAFF	Ministry of Agriculture, Fisheries and Food
MEA	Ministry of Economic Affairs
MIDA	Malaysian Industry Development Authority
MSTE	Ministry of Science, Technology and Environment
NEPA	National Environmental Policy Act
NGOs	non-governmental organisations
NIET	National Institute of Environmental Training
NRA	National Rivers Authority
NTIS	National Territory Information System
PLN	Perusahaan Umum Listrik Negara (National Electricity Corporation)
PWD	Public Work Department
SD	Scottish District Council
SDD	Scottish Development Department
SEA	strategic environmental assessment
SNCC	Sixth Naphtha Cracking Complex
SOED	Scottish Office Environment Department
SOS	Secretary of State
SR	Scottish Regional Council
TCRP 1988	Town and Country Planning (Assessment of Environmental Effects) Regulations 1988
TOR	terms of reference
TPG	Taiwan Provincial Government
UNCED	United Nations Conference on Environment and Development
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environmental Programme
USAID	United States Agency for International Development
WC	Welsh County Council
WD	Welsh District Council
WO	Welsh Office

CHAPTER 1.

INTRODUCTION

1.1 HISTORICAL REVIEW AND BACKGROUND

Since World War II problems of environmental degradation and pollution have escalated resulting in a variety of serious impacts on both human life and the environment. In the USA and Europe these problems have arisen due to the continued development and expansion of industry, urbanisation, infrastructure, power generation, and the widely spread practice of intensive farming which have led to the generation of a much larger volume of toxic products and wastes by chemical, manufacturing and agricultural industries. These environmental problems have attracted the concerns of, and specialised protests from, naturalists and ecologists who were aware the dangers and risks associated with development without environmental protection.

In the 1960's, wide-scale environmental awareness emerged in both North America and Europe. During that period, Rachel Carson's book "Silent Spring" (*Carson 1963*) first published in the USA made a very important contribution. This book set out to show the American people how their lives and lands were affected by the large-scale and indiscriminate spraying of crops with toxic agro-chemicals and the adverse ecological consequences. The ecological concerns began to take the political-stage in the late 1960's, no longer being seen as the preserve of academia (*Sheate 1994*). In the USA, mounting pressure from public interested groups and environmentalists forced the state and federal governments to take actions to begin to deal with the environmental problems and to exert control over the release of toxic chemicals to the environment.

Environmental impact assessment (EIA), as we know it today, started in the USA and was an important product of the environmental movement in the late 1960's. In 1969, the National Environmental Policy Act (NEPA) (*US Government 1970*) was established in the USA, which required environmental impact statements (EIS) to be prepared for federally-funded or supported projects which are likely to have significant impacts on the environment. One of the driving-forces for the introduction of the NEPA was that there was a wide spread recognition that some of the environmental problems resulted from the actions of the Government itself. Section 2 (2) of the NEPA states the requirements for every federal agency to prepare an EIS for proposed legislation or major federal actions significantly affecting the quality of the human environment. The US Council on Environmental Quality set up after the NEPA, had developed standard processes for preparing and distributing the EIS, called the NEPA process in 1978.

O'Riordan and Turner (1983) identified four reasons why the introduction of EIA gained momentum. Firstly there was an increasing public awareness of the dangers and impacts of developments and new technologies due to a better scientific knowledge and publicity. Secondly, the increasing activities of pressure groups in the USA and UK played an important role, whose political influence was strengthened by scientific evidence. The third reason was widespread concern about the sheer scale of resource-developments and their subsequent environmental impacts. The fourth reason was that the Western developed countries were more cautious and responsive to the above three factors. Thus, EIA was a natural consequence of the politicisation of the environment.

The concept of EIA may be considered as having been accepted in principle in the United Nations Conference on the Human and Environment held in June 1972 in Stockholm, when the framework for modern international and national environmental policies was laid down (*Fortlage 1990*). This conference also led to the subsequent establishment of the United Nations Environmental Programme (UNEP) to monitor the global environmental changes.

After its introduction in the USA, the idea of EIA, as a useful instrument to guide planning and decision-making of developments, was widely adopted in principle among developed and developing countries in the 1970's and 1980's. In developed countries, Canada was the first country to follow the USA and introduced EIA in 1973. In Europe, some States set up their EIA systems in the mid 1970's (e.g. West Germany 1975, France 1976). A formalised European Community (EC) wide EIA system was established in 1985 through the introduction of the EC Directive 85/337/EEC (*Commission of the European Communities 1985*). The Directive formed the basis for setting up national laws for the environmental control of new developments for the EC Member States.

As for the development of EIA in developing countries, the establishment of indigenous EIA procedures and capacities is highly variable. In many respects South-East Asia was the most advanced region in the developing world regarding the establishment of EIA. The adoption of EIA is less widespread in Latin America and much less so in Africa (*Horberry 1985; Kennedy 1988; Moreira 1988*). The impetus for developing countries to adopt and/or develop EIA was a combination of the declining environmental quality and emerging pollution problems, and the exemplary influence of the West, as well as the funding requirements of international/bilateral aid agencies (e.g. World Bank, Asian Development Bank, Canadian International Development Agency, US Agency for International Development). The view of EIA as a useful instrument for environmental protection was shared by many multilateral/bilateral donor agencies which have increasingly strengthened their commitment to EIA by stipulating it as one of their funding requirements to recipient counties. Robinson (1991) pointed out that more than 40 countries had adopted EIA by the early 1990's. Some countries implement the EIA system based on specific EIA regulations, while others depend upon non-statutory administrative arrangements.

A recent important development in EIA occurred at the Earth Summit in Rio de Janeiro in June 1992 held by the United Nations Conference on Environment and Development

(UNCED). Two of the outcome documents of the Earth Summit, the Rio Declaration (a set of 27 principles on environment and development issues) and Agenda 21 (*UNCED 1992*), have important implications to EIA. Principle 17 of the Rio Declaration states that "EIA, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority". In addition, paragraph 8.5 (b) of Agenda 21 states the need to develop and expand the principles of EIA and to make an unequivocal connection between the application of EIA principles and sustainable development. EIA is now globally recognised as one of the most important tools for environmental management.

1.2 DEFINITION AND FUNCTION OF EIA

There is no absolute definition of EIA as a single concept. Over the past two decades, there were many definitions of EIA set out by various researchers and organisations. Although the exact wording of the definitions may be different, the principles and core idea of EIA are more or less the same. For example, Munn (1979) described the objective of EIA as being "to identify, predict, interpret and communicate information about the impacts of an action on man's health and well-being (including the well-being of eco-systems on which man's survival depends)". Clark (1983) stated that "the purpose of an EIA is to determine the potential environmental, social, economic and health effects of a proposed development and to present the results in a form that permits a logical and rational decision to be made". Wathern (1988) stated that EIA is the process of evaluating the likely environmental consequences of a proposed major action significantly affecting the natural and man-made environment. Wilson (1990) defined EIA as "a formalised system of drawing together comprehensive data regarding the environmental effects of a proposed project and presenting them in a way which permits evaluation of the predicted effects and the scope for amelioration". An integral part of this process is the progressive formulation of the scheme with objective of developing the best environmental option.

By considering the interactive features of EIA, the EIA process can be viewed in a procedural sense and as a pattern of interaction among participants who often have very different understanding, anticipation and interests towards EIA (*Lawrence 1994*). In a similar manner, EIA can be characterised as a political and administrative process. It is a political process as it guides and legitimises decision-making and involves the allocation of responsibilities. In an administrative sense, EIA consists of formal and informal mechanisms and sequential steps through which the products of EIA studies are formulated, reviewed, approved and implemented (*Dale and Kennedy 1981*). Smith and Wansem (1994) offered two types of EIA model, the technocratic/regulatory model and consensus building/management model. In the technocratic/regulatory model, EIA has a highly focused purpose, namely to produce information to assist governmental officials and project proponents in identifying projects which best satisfy pre-ordained policies, regulations and standards. The consensus building/management model regards EIA as a means to integrate environmental factors with socio-economic and technical planning processes, and to improve project outcomes by broadening the scope of considerations to incorporate environmental values and concerns into the project decision-making.

The sequential stages of an EIA may vary in different countries, but the NEPA model outlines the following steps (*Culhane 1993; Bass and Herson 1993*):

i. Screening to decide if an Environmental Assessment (EA) is required for the proposed action,
ii. Preparation of an EA which determines whether the proposed action would result in any significant environmental effect,
iii. Preparation of a finding of no significant impact, if an EA concludes that a proposal's impacts are not sufficiently major and significantly affecting the environment to require an EIS,
iv. Conducting a scoping exercise to determine the terms of reference, if an EIS is required,
v. Preparation of a draft EIS,

vi. Agency/Public review and comment,

vii. Preparation of a final EIS,

viii. Decision-making and the preparation of a Record of Decision,

ix. Agency action,

x. Channels for citizens to sue responsible agencies which fail to meet the legal requirements of EIA.

These have not been adopted by all countries and there is a considerable variation in the implementation of EIA by different countries.

1.3 EIA EXPERIENCE IN DEVELOPED AND DEVELOPING COUNTRIES

There is an uncountable number of articles, papers and reports relating to the study of EIA in developed and developing countries. Positive benefits and significant improvements to planning design and decision-making resulting from EIA are widely identified and appreciated by many researchers, organisations and national governments. However, various difficulties and constraints are encountered by both developed and developing countries in implementing EIA.

Sánches (1993) studied EIA in France. Although the system came into effect in 1976 and about 5000~6000 EISs are produced annually, there are no formal requirements or provisions for scoping exercises or for conducting post-EIA monitoring. Moreover, the decision-making process is dominated by civil servants and not generally affected by public participation in the EIA process. Devuyst (1994) argued that there were several problems with EIA implementation in Flanders, Belgium, including inappropriate scoping exercises, no mandatory requirements to examine alternatives, and inadequate quality of EIA reports. In 1991 the UK was accused by the European Commission of neglecting to fully transpose the EC Directive 85/337/EEC into national laws and to have failed to

undertake EIA for projects likely to give rise to significant effects (*Ball 1991*). Even in the USA, which has more than 25 years experience in EIA since the enactment of NEPA, there are still some criticisms. For instance, it has been claimed that, EIA is little more than a bureautic exercise that requires the Federal agencies to complete paperwork which they subsequently ignore or do not take into account seriously (*Fogleman 1993*), and also that EIA is not well integrated into decision-making (*Ensminger and McLean 1993*).

There is much literature on the experience of conducting EIA in various developing countries, which predominately focuses on technical analyses of the difficulties experienced in using imported EIA programmes, dealing with international agreements and understanding national working methods. The general criticisms and identified shortcomings relating to the deficiency of EIA implementation in developing countries are lack of knowledge and expertise (*Lohani and Halim 1987; Roque 1985*), lack of public involvement, insufficient resources to support its implementation, the influence of the prevailing political and socio-economic climate of the nation and the existence of powerful political and economic sectoral interests (*Fuggle 1990; Roque 1986*). One of the distinct differences in EIA procedures between developed and developing countries is public involvement in the EIA process. The public participation process in developed countries did not evolve in a vacuum, rather it is a product of the Western political, technical and cultural tradition (*Yap 1994*). The export of this process to developing countries often meets constraints and resistance, since the governmental power is usually centralised, and the ability and/or freedom of the public to become involved in the EIA and decision-making processes is often limited or discouraged. There are also common shortcomings of EIA implementation encountered by both industrial and developing countries, for instance lack of post-EIA monitoring and enforcement (*Ensminger and McLean 1993; Ortolano and Shepherd 1995*), and deficiency of impact prediction and financial limitation for carrying out EIA studies (*Dickman 1991; Berkes 1988*). Moreover, there is some debate on the ability of project-level EIA to integrate assessments of all potential impacts (e.g. cumulative impacts) and alternatives. It is also argued that EIA

effectiveness may be hampered by higher level decision-making on policies, plans and programmes (*Armour 1991; Wood and Dejeddour 1992*).

1.4 FUNDAMENTAL COMPONENTS OF EFFECTIVE EIA

Before discussing the specific objectives of this thesis, it is essential to define what is meant by effective EIA. Although there is much interest in developing policies and programmes which could lead to effective EIA, there are arguments about what comprises an effective EIA. Hirji and Ortolano (1991) introduced a concept of EIA effectiveness in terms of five dimensions, including (1) procedural compliance, (2) completeness of EIA documents, (3) methods to assess impacts, (4) influence on project decisions and (5) weight given to environmental factors.

Boyle (1993) outlined seven fundamental elements of an effective EIA programme (see **Table 1.1**). He used an evaluation of these elements to assess the effectiveness of an EIA programme which had been used for some specific projects. Further analysis of these elements can be usefully made. In **Table 1.1**, point 1 is related to EIA implementation in practice, i.e. whether it is initiated early in the project cycle in association with economic and technical feasibility studies, planning and design. Points 2, 5 and 6 consider the adequacy of the EIA procedure including screening, scoping, review and approval process, as well as public participation. Points 3 and 4 concern the adequacy of the EIA study itself, including impact identification and prediction, mitigation measures, and also the consideration of project alternatives. Point 7 relates to the adequacy of post-EIA monitoring and management.

Conver and Hanson (1992) drew attention to several general issues which they considered to be important aspects of an effective EIA. These issues were grouped into seven categories, including (1) administrative and procedural matters, (2) quality of assessment,

(3) public participation, (4) follow-up to the assessment, (5) relationship of EIA to environmental management and regional development, (6) education, training and certification and (7) broader international context of EIA.

The foregoing review of studies on the attributes of an effective EIA, enables the fundamental components of an effective EIA system to be formulated (see **Table 1.2**)[a] . These attributes are considered to be essential if an EIA system is to be successfully and effectively implemented. These fundamental components provide a working hypothesis for analysing EIA implementation. They have provided the basis for determining and formulating of the scope of the current study and will be applied to examine the effectiveness and performance of EIA systems in a variety of countries.

Table 1.1 Fundamental elements of an effective environmental assessment programme (Boyle, 1993)

1.	Environmental planning and assessment initiated early in the project cycle to proceed in concert with economic and engineering feasibility studies, planning and design.
2.	Effective screening and scoping to ensure a focus on environmentally significant projects and impacts.
3.	Adequate identification and prediction of likely negative impacts and measures for avoiding, mitigating and managing them, and of potential environmental benefits.
4.	Consideration of alternative project locations and/or designs to avoid or compensate for negative impacts and capture benefits.
5.	Project review and approval process emphasised the need to avoid, mitigate or compensated for negative impacts and to capture environmental benefits.
6.	The needs and concerns of affected individuals and communities are adequately addressed to ensure they benefit from a project and/or are compensated for their losses.
7.	Adequate surveillance, monitoring and management measures are implemented so that negative impacts are avoid, mitigated or managed, and potential benefits are realised, in the long-term.

[a] Items in Table 1.2 are referred to throughout the text by table and item number, e.g. 1.2 - 1.

Table 1.2 Fundamental components of an effective EIA system

1. **Environmental policies, regulations and technical guidelines:** National environmental policies, law, EIA regulations and EIA technical guidelines are important as they provide the basis for the development and implementation of a national EIA system.

2. **Environmental administrative framework:** The development and implementation of the EIA system requires a formal administrative framework established by the national government.

3. **EIA procedure:** A well defined EIA procedure should be established which will provide clear guidance for affected/interested parties to participate in the EIA exercise and create mechanisms for responsible government agencies to administer EIA cases.

4. **Role of actors involved in the EIA procedure:** There should be explicit provisions for allocating responsibilities to participants involved in the EIA procedure to enable a smooth and effective implementation of the EIA system.

5. **Status of EIA reports:** Accurate impact identification, prediction, evaluation and the consideration of alternatives are essential to the EIA studies. Clearly defined requirements for contents and format will ensure the complete coverage and uniform presentation of EIA reports. The adequacy and accuracy of EIA studies will influence the quality of EIA reports.

6. **EIA compliance monitoring and enforcement:** EIA compliance monitoring and enforcement are essential to ensure that the EIA recommendations for mitigation are carried out when projects are put into operation.

7. **EIA implementation in practice:** The success of EIA implementation is affected by the social-economic-cultural conditions and political factors in the country, and also the understanding, interpretation, attitude and anticipation of all participating parties towards to EIA.

8. **Resource availability for EIA implementation (human and physical resources):** The availability of domestic and international resources (human, financial and infrastructure resources) may constrain or reinforce the success of the EIA system.

9. **Implementation of strategic environmental assessment (SEA):** The compatibility and integration of project EIA with national/regional policies, plans and programmes is important to safeguard the effectiveness and performance of the EIA system. EIA should be upgraded where appropriate to SEA in order to evaluate the environmental impact of policies, plans and programmes.

10. **International interactions:** Interactions between national EIA systems and international factors affect the success of national EIA development and implementation.

1.5 PURPOSE AND OBJECTIVES OF THE STUDY

Although EIA has been implemented in many countries around the world, no two countries have adopted precisely the same EIA processes. This is not unexpected since every country has its own unique institutional framework, political structures and socio-economic conditions, as well as different national needs and interests. Many lessons have been learned from past experience of EIA to improve its effectiveness. However, an ideal or comprehensive approach to EIA does not currently exist. The purpose of this study is to develop an EIA Evaluation Model and a conceptual framework for a comprehensive EIA system which will be derived from a comparative evaluation of the EIA systems in a variety of countries. Once developed, competent national authorities will be able to use the proposed conceptual framework for a comprehensive EIA system as a reference model and apply this EIA Evaluation Model to assess the effectiveness of their own EIA systems and EIA capacities. Competent national authorities may, then, prioritise their efforts in order to overcome perceived constraints and shortcomings of the existing systems or to develop a new EIA system. They will of course take into account the availability of national resources and international assistance, domestic socio-economic-cultural factors, and the existing administrative and institutional framework to achieve an appropriate and effective EIA system.

The objectives of the research are thus as follows.

- To provide a conceptual framework for evaluating an EIA system.
- To make a comparative evaluation of the EIA systems with particular reference to developing countries
    - to highlight the differing national approaches and scientific perception of the environmental problems,
    - to describe the current EIA system in the country,
    - to discuss the strengths and weaknesses of different EIA approaches,
    - to discuss the achievements of current EIA systems,
    - to discuss the difficulties and problems encountered and suggest

possible strategic actions and programmes that the country can carry out to strengthen its EIA system,

- To develop an EIA Evaluation Model and a conceptual framework for a comprehensive EIA system.

1.6 RATIONALE FOR THE SELECTION OF THE CASE STUDY COUNTRIES

In this study, it was intended to develop the research objectives with particular reference to countries in the rapidly developing South-East Asian region. Industrial development and population pressures in countries of this region are varied as are the political and social infrastructures. For comparative evaluation, the UK was taken as a developed Western country and Taiwan, Malaysia and Indonesia as examples of differing South-East Asian nations. All the countries chosen as case studies have embarked, since the late 1970's, on the development of EIA procedures and strategies. The EIA system in the UK was formally established in 1988 to meet the requirements of EC agreements although it had been used on a voluntary basis since the late 1970's. Taiwan began to develop EIA in 1983 through non-statutory administrative arrangements. The USA model and Japanese model were important references for the initial formulation of the Taiwanese system. Malaysia established its EIA system in 1985 whilst Indonesia began in 1982 to develop its EIA system which is strongly influenced by the Canadian model.

From an economic and industrial view point, these four nations, one in Europe and three South-East Asia, are at different stages of development. Of the four nations, the UK is a developed country with a Gross National Products (GNP) per capita in 1990 of 16,100 (US$). The economic growth and development of Taiwan has increased rapidly, with a 1990 GNP per capita of 7,954(US$) and a status now approaching the level of developed countries (*The Free China Journal 1992*). Malaysia and Indonesia are two less developed

nations in South-East Asia, but with a rapidly developing industrial base and GNPs per capita of 2,320 (US$) and 570 (US$) respectively (*GEMS Monitoring and Assessment Research Centre 1993*). It is recognised that the developmental status of the nations, their institutional frameworks, the socio-cultural conditions and international pressures, have considerable impact and influence on the development of the indigenous EIA policies and capacities.

CHAPTER 2.

THE STRATEGY AND SCOPE OF THE STUDY

2.1 THE STRATEGY AND DESIGN OF THE STUDY

The study strategy involved theoretical, conceptual and practical studies in the UK together with the collection and analysis of EIA related information from the other case study countries. This strategy was designed to highlight differing national approaches and scientific perception of environmental problems and to identify strengths, weaknesses, achievements and difficulties of the EIA systems. Data collection methods included a questionnaire survey, interviews, on-site observations and gathering published written documents. The research work was conducted during the period 1992-1994. **Figure 2.1** provides an overview and identifies the major stages in the research programme.

2.2 STATEMENT OF RESEARCH QUESTIONS

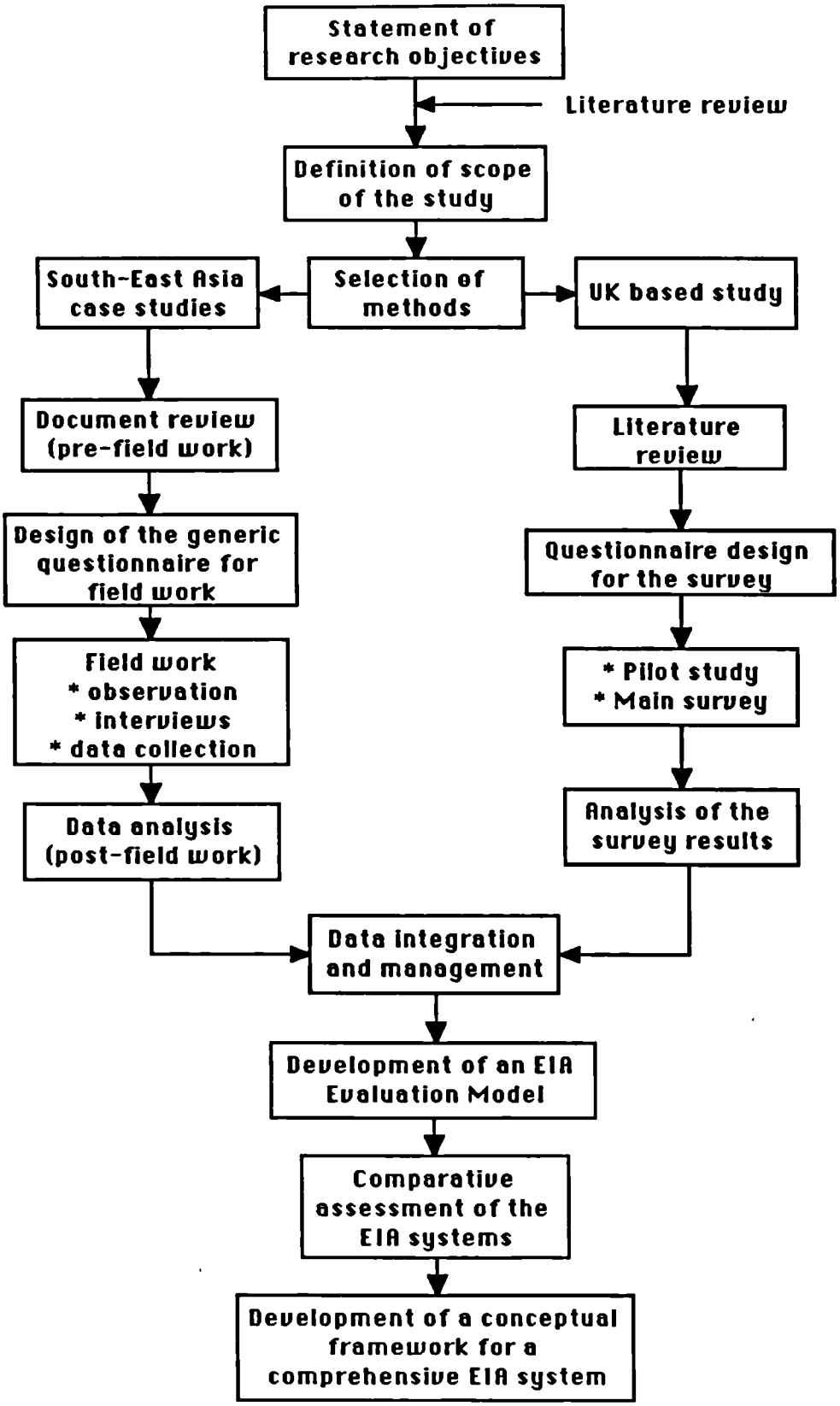
In order to achieve the defined objectives, answers are required to a number of generic questions:

i. What are the fundamental components, aspects and governing factors/elements which need to be considered while analysing an EIA system?

ii. To what extent, and how effectively have particular EIA systems been implemented, and to what extent was this influenced by the unique interplay of governing factors/elements in the case study countries?

iii. What are the main components, stages, associated activities, interrelationships and options for action required for the development of a conceptual framework for a comprehensive EIA system?

Figure 2.1 The major stages in the research programme



iv. To consider how far a conceptual framework for a comprehensive EIA system can be used to improve the effectiveness of EIA in differing countries, bearing in mind the varying political, social-economic and cultural circumstances that may exist.

The answer to the first question provides an initial set of independent variables which are used to examine the second question in case study countries. The results obtained from the case studies are used to formulate answers to question three and four, and thus fulfil the overall objectives of the project.

2.3 SCOPE OF THE STUDY

Having decided on the overall objectives of the study and framed the research questions which need to be answered, the scope of the study can be defined. There have been several papers, articles and reports comparing the EIA experience of different countries. For example, Barrett (1990) compared the Japanese EIA system with those of the UK and USA, with reference to their evolution, procedures and specific characteristics. MacDonald (1994) examined the differing EIA experience in developing countries and industrial countries in relation to the EIA process, legal requirements, public participation, and the countries' economic growth and environmental management. Yap (1994) compared EIA in Thailand and Canada, and mainly focused on the screening criteria, scope, participants, review criteria and public participation of the EIA procedures.

Some conceptual frameworks for analysis of EIA systems have been proposed by various researchers. Lim (1985) offered a conceptual framework for analysing institutional processes and performance outcome of EIA implementation in three developing countries, including the Philippines, Korea and Brazil. In this framework, eight classes of participants in the EIA procedure were identified, and five types of performance outcome were suggested. In addition, three aspects of EIA implementation were compared:

national development planning and environmental goals; institutional structures; and performance evaluation. A framework which distinguished three broad categories of factors which affected the achievements of policy objectives throughout the implementation process, was proposed by Sabatier and Mazmanian (1981), including the tractability of the problem, the ability of a statute to structure implementation, and the non statutory variables affecting implementation. Found (1992) proposed a conceptual framework which focused on the elements of the implementation process and their relationships, as well as identifying various "environments" which influenced how the process operated and the natures of its outcomes. To apply this framework, it is necessary to define and identify particular factors thought to influence the way in which the elements, actors and various environments interrelate and contribute to policy and/or programme implementation. Boyle (1993) developed a conceptual framework to examine socio-cultural and political influences on EIA implementation in Thailand, Malaysia and Indonesia, in which three levels of "environments" were defined: extra-national environments, national environments and the environment of EIA implementation. Within the extra-national and national environments, the interrelationships and influences of political, socio-cultural, economic and natural/physical factors on EIA implementation were analysed. In the environment of EIA implementation, the interrelationships and influences of leadership, tasks, implementers, stakeholders, institutional structure, and policies/legislation/regulations on EIA were also examined.

These comparative reviews and proposed conceptual frameworks were used in conjunction with the working hypothesis to set the scope of this study which comprises three parts: domestic and international factors affecting the EIA system; basic elements influencing the effectiveness of EIA implementation; and Quality Control Mechanisms. This defined scope provides an uniform basis for examining the insights, effectiveness and performance of the individual EIA systems. It also, later, serves as the foundation for the development of an EIA Evaluation Model and a conceptual framework for a comprehensive EIA system in the final chapter of this thesis.

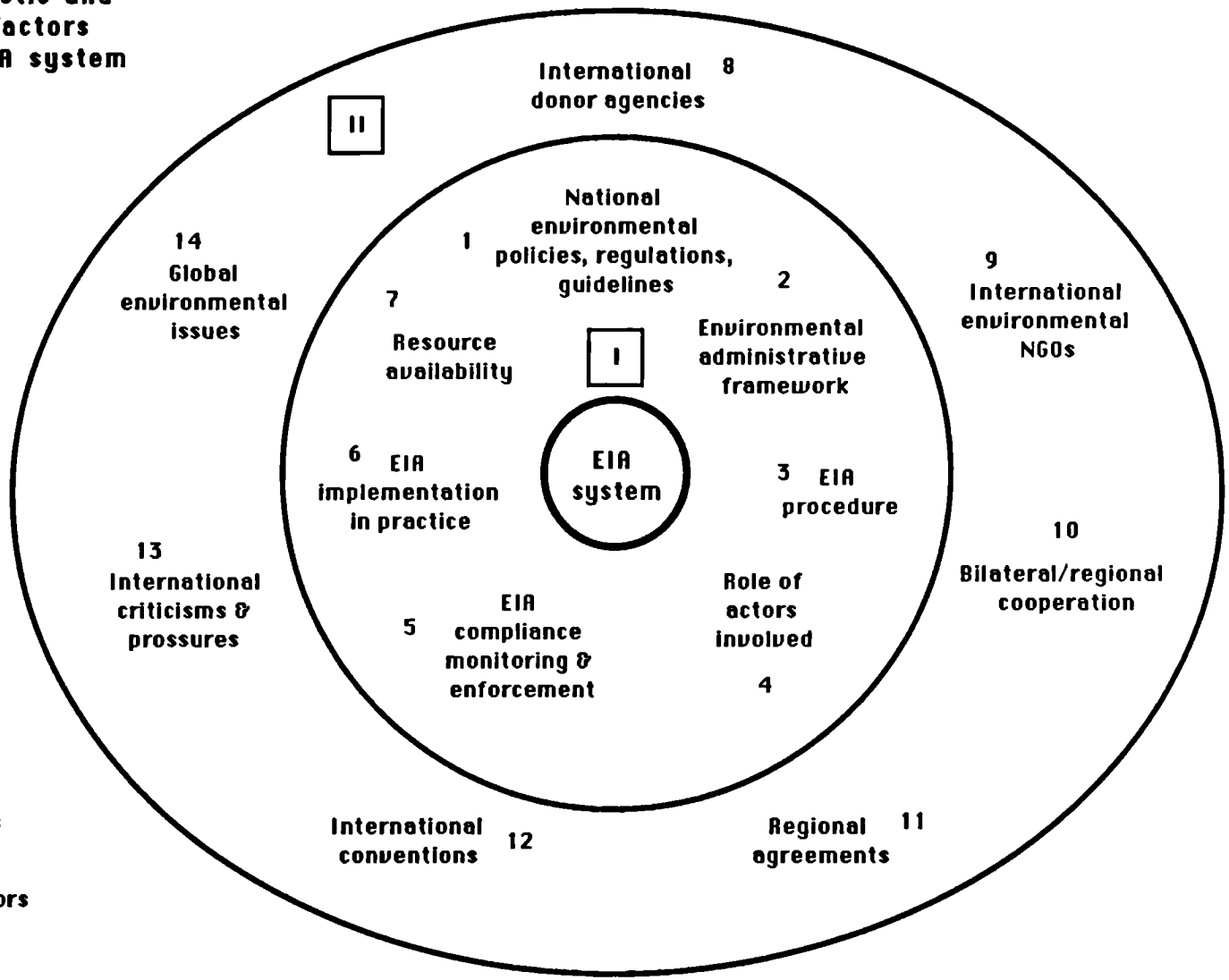
2.3.1 DOMESTIC AND INTERNATIONAL FACTORS AFFECTING THE EIA SYSTEM

All the fundamental components of an effective EIA system can be classified into two categories, domestic factors and international factors, which affect the EIA system (see **Figure 2.2**). All the domestic and international factors are closely interrelated in the process of EIA implementation, which determines the success or failure of an EIA system.

Domestic factors are the factors to be considered while examining the development and implementation of the national EIA system. These factors include: national environmental policies, regulations and guidelines; environmental administrative framework; EIA procedure; role of actors involved in the EIA procedure; EIA compliance monitoring and enforcement; EIA implementation; and the availability of human and physical resources. Consideration of the status of EIA reports and SEA was incorporated into the examination of these domestic factors.

The international factors are defined as non-domestic forces which affect the development and implementation of the national EIA system. They include: international donor agencies; international environmental non-governmental organisations (NGOs); bilateral/regional cooperation; regional arrangements; international conventions; international criticisms/pressures; and global environmental issues. These factors may have significant influence on EIA operation at national level, including enactment of the national EIA regulations, domestic EIA implementation in practice and national EIA capacity building. In some cases, these international driving-forces may be the primary impetus for the initiation and introduction of a national EIA system. This is especially the case in developing countries where international assistance in terms of financial, technical and man-power supports, are frequently provided.

Figure 2.2 Domestic and international factors affecting the EIA system



Key:

I : domestic factors

II : international factors

2.3.2 BASIC ELEMENTS INFLUENCING THE EFFECTIVENESS OF EIA IMPLEMENTATION

The basic parameters considered to be particularly germane to the research questions were formulated (see **Table 2.1**). These were drawn from the expansion of the idea of the fundamental components of an effective EIA system, the model of domestic and international factors affecting the EIA system and an analysis of the literature on EIA and the implementation of public policies in developed and developing countries. The basic elements were grouped into eight categories. An effective EIA system will depend on the application of policies and procedures which give adequate information and support for the decision-making process. This concept of adequacy thus provides a bench mark against which the effectiveness of a particular approach can be judged.

i. National Environmental Policies, Regulations and Guidelines: It is readily acknowledged that the effectiveness of EIA will be dependent upon other environmental policies, laws, or plans, and also upon its compatibility with various levels of policies, plans and programmes. The existence of EIA regulations enables the EIA system to be legally enforceable and ensures compliance with and enforcement of EIA results. The availability and adequacy of relevant EIA technical guidelines and provisions which provide guidance to participants throughout various stages of the EIA procedure, are important factors which contribute to EIA effectiveness (2.1 - 1~9)[b].

ii. Environmental Administrative Framework: It is recognised that EIA is a cross-sectoral operation involving various governmental agencies. Its effectiveness will be affected by the ability of the government to clearly allocate responsibilities, to involve and coordinate various agencies with various mandates at different levels (2.1 - 10~15).

[b] Items in Table 2.1 are referred to throughout the text by table and item number, e.g. 2.1 - 1.

Table 2.1 Basic elements influencing the effectiveness of EIA implementation

i.	**National Environmental Policies, Regulations and Guidelines**
1	The adequacy* of environmental policies, regulations and plans for dealing with environmental protection and management concerns
2	The compatibility and linkage of project EIA with national/regional development policies, plans and programmes (strategic environmental assessment)
3	The availability of a legal basis for EIA implementation
4	The adequacy of EIA screening criteria
5	The availability and adequacy of EIA Technical Guidelines for various types of developments subject to EIA
6	The adequacy of the format and contents of the EIA report
7	The availability of guidelines for EIA review
8	The availability of a legal basis and guidelines for appeals and dispute settlement
9	The availability of a legal basis and guidelines for EIA compliance monitoring and enforcement
ii.	**Environmental Administrative Framework**
10	The extent to which the responsibility for development and management of the EIA system is explicitly allocated to a core environmental agency
11	The adequacy of the EIA administrative mechanism within the governmental framework
12	The way of allocating the task of EIA implementation (centralised or decentralised) in the current system
13	The degree of coordination, communication and cooperation among various participating agencies
14	The compatibility of functions and mandates of various participating agencies involved in the EIA procedure
15	The adequacy of the EIA management setting within the participating agencies

(continued)

* See definition of adequacy on page 34.

Table 2.1 Basic elements influencing the effectiveness of EIA implementation

iii.	**EIA Procedure**
16	The adequacy of the EIA screening process
17	The requirements and adequacy of scoping meetings and site visits
18	The adequacy of the participatory mechanism for involving the various parties in the EIA procedure
19	The extent to which channels for public consultation at various steps of the EIA procedure are provided
20	The adequacy of the EIA report preparation process
21	The adequacy of the EIA review process
22	The adequacy of the EIA decision-making process
23	The availability of paths for the public and interested groups access to project information, EIA reports and review results
24	The availability and adequacy of channels for appeals and dispute settlement
25	The extent to which the time limit for each key step of the EIA procedure is clearly stipulated
iv.	**Role of Actors Involved in the EIA Procedure**
26	The adequacy and explicitness of roles and duties of participants involved in various steps of the EIA procedure (i.e. EIA administrators, proponents, consultants, EIA reviewers, public/NGOs and relevant agencies)
27	The availability of independent EIA review panels and the adequacy of their membership
28	The availability of a superordinate authority in handling appeals and dispute settlement regarding EIA decisions (administrative appeals)
29	The availability of judicial agencies in handling appeals and dispute settlement regarding the legal process of EIA (judicial appeals)
v.	**EIA Compliance Monitoring and Enforcement**
30	The availability of programmes for EIA compliance monitoring and enforcement

(continued)

Table 2.1 Basic elements influencing the effectiveness of EIA implementation

31	The extent to which competent authorities and/or environmental agencies carry out EIA compliance monitoring and enforcement
32	The extent to which project proponents need to comply with EIA results and submit the results of environmental monitoring to the responsible agencies
33	The availability of channels for the involvement of local communities in the programme of EIA compliance monitoring and access to the monitoring results
34	The adequacy of penalties and sanctions against non-compliance with EIA decisions
35	The extent to which EIA is linked with the permitting/licensing system
vi.	**EIA Implementation in Practice**
36	The influence of domestic social, economic and political factors on EIA implementation
37	The extent to which environmental awareness prevails among the public
38	The adequacy of attitude, understanding, interpretation and anticipation of various participants towards to EIA.
39	The initiation of environmental planning and assessment at the early stage in the project cycle in association with feasibility studies, planning and design
40	The ability of affected citizens to organise themselves to become interested groups involved in the EIA procedure, and the extent to which they can access public and private sector decision-makers and their influence on planning and development decisions
41	The opportunity to experiment and "learn by doing " in developing appropriate and effective administrative and implementing processes
42	The strength of support for EIA from domestic environmental groups
43	The extent to which EIA is upgraded to strategic environmental assessment in the nation
vii.	**Availability of Resources for EIA Implementation**
44	The adequacy of man-power resources within the government agencies responsible for the management and implementation of the EIA system

(continued)

Table 2.1 Basic elements influencing the effectiveness of EIA implementation

45	The availability and adequacy of EIA training courses, seminars and workshops specially organised for the target groups (i.e. EIA administrators, reviewers, consultants and proponents) involved in the EIA procedure
46	The adequacy of qualification control over EIA assessors (consultants), reviewers and administrators
47	The adequacy of financial resources allocated to the responsible agencies for EIA implementation
48	The availability of a central environmental database (on-line data collection, storage and retrieval system)
49	The extent to which computing facilitates and techniques are available and applied in EIA (e.g. geographical information systems)
50	The availability of an EIA tracking system (which records the status of EIA projects, status and database of EIA reports and status of EIA compliance monitoring and enforcement), and the extent to which the public and interested groups can have access to this information
viii.	**International Interactions**
51	The extent to which financial and technical supports from international donor agencies are available and their influence on the development, capacity building and implementation of the national EIA system (i.e. EIA training, research, facilities building, project funding)
52	The extent to which EIA guidelines and requirements of international donor agencies affect the national EIA practice
53	The compatibility of the EIA guidelines and requirements of international donor agencies with the national EIA system
54	The extent to which international environmental non-governmental organisations influence on the national EIA practice.
55	The influence of bilateral/regional cooperation on the development of the national EIA system
56	The influence of regional agreements and environmental quality standards on the national EIA regulations and practice
57	The extent to which international conventions, pressures and criticisms, and global environmental issues influence on the national EIA practice

iii. EIA Procedure: From the procedural point of view, the defined requirements and actions at every stage of the EIA procedure should clearly outline what should be done throughout the process. It is also recognised that if the EIA system is to be successful, public participation is essential (2.1 - 16~25).

iv. Role of Actors Involved: It is clearly important to have an appropriate and clear definition of the role of the participants in an EIA and in particular a definition of responsibilities. It is only in this way that the work can be carried out unambiguously and effectively. The involvement of a superordinate authority and a judicial agency may provide measures for resolving appeals and disputes, and avoiding confrontations. A further key factor is where does the ultimate authority and responsibility lie, i.e. who is responsible for preparing the EIA reports, who has the duty to consider the EIA reports and where does the authority for planning or consent decisions on whether a project should proceed rest (2.1 - 26~29).

v. EIA Compliance Monitoring and Enforcement: Monitoring and enforcement conducted by responsible agencies and project proponents cooperatively, can ensure that EIA results are truly and effectively implemented. Also, local communities can play a part and contribute to this task. If the EIA results are linked with the existing permitting/licensing system, the effectiveness of compliance and enforcement can be reinforced (2.1 - 30~35).

vi. EIA Implementation in Practice: The implementation of EIA and its outcome are significantly influenced by the political and social-economic conditions of the society in which it operates. The effectiveness of EIA can be strengthened when it is initiated early on the project cycle. The environmental awareness of the public and environmental NGOs and their ability to organise themselves in the EIA activities are important in fulfilling the objectives of EIA. Because EIA practice is evolving and improving as time goes by, the ability and flexibility of responsible agencies to develop adequate procedures to implement it in the light of experience will contribute significantly to its success. It is acknowledged by many that the effectiveness of project level EIA may be hampered by the higher tiers, policies,

plans and programmes, and not be comprehensive enough to assess all types of impacts. The upgrading of project EIA to a higher level, SEA, will reinforce, expand and enhance its effectiveness (2.1 - 36~43).

vii. Availability of Resources: The effectiveness and objectives of EIA will not be achieved and/or fulfilled, if there are insufficient human, physical resources to support its implementation, even if there is a comprehensive EIA system in place. Regular and/or on-the-job EIA training, and qualification control over various participants involved in the EIA system will help to improve EIA effectiveness (2.1 - 44~50).

viii. International Interactions: The final set of basic elements concerns the international influence on the national EIA practice (2.1 - 51~57).

These fifty seven basic elements have been identified which may be expected, to a lesser or greater extent, to affect EIA implementation. These elements form the basis for examining and comparing the individual EIA systems in the UK, Taiwan, Malaysian and Indonesia.

2.3.3 QUALITY CONTROL MECHANISMS

In this study, one of the intentions was to formulate a mechanism for improving the quality control and management of the EIA system.

Ortolano *et al.* (1987) outlined a set of Control Mechanisms, using the concept of control from organisational theory, to explain the differences in EIA effectiveness. They pointed out that "Control Mechanisms are intra-organisational and inter-organisational processes and structures intended to ensure that the lead agencies (or project proponents) account for environmental impacts in planning and decision-making". Since 1987, several papers have been published, in which the role of the Control Mechanisms in EIA implementation in various countries was examined. For example, Abracosa and Ortolano (1987) examined the EIA system in the Philippines. Hirji and Ortolano (1991) examined the

implementation of EIA for water resources development projects in Kenya. Tu (1993) analysed EIA implementation in Taiwan and Thailand, in which a comparative organisational examination of state-owned power companies was studied. Ortolano (1993) introduced the six Mechanisms of Control, listed in **Table 2.2**, which were adapted from the Control Mechanisms proposed by Ortolano *et al.* in 1987. As argued by Ortolano (1993), "a control is a factor tending the motivate project proponents to conduct EIA". Ortolano discussed the influence of the various Mechanisms of Control, but a further sequential analysis can be usefully made. Thus, the primary driving forces for the introduction of EIA include formal Procedural Control which may be supplemented by Development Aid Agency Control in some instances. Professional Control and Direct Public and Agency Control act as watchdogs to ensure that formal procedures are established and executed. Judicial Control and Evaluative Control exert quality control and introduce the threat of sanctions against failure to carry out adequate EIA procedures. They will encourage project proponents to adopt good EIA practice in the first instance.

In the current study, the concept of Mechanisms of Control was considered over a wider scope and from a different angle. They should not only cover the impetus of introducing and conducting EIA, but also cover the quality control and management of the EIA system itself. Quality Control Mechanisms are, therefore, proposed. There is no doubt that the Mechanisms of Control have been useful for the formulation of the newly proposed Quality Control Mechanisms. These Mechanisms consist of nine categories listed in **Table 2.3**. These newly proposed Mechanisms can be applied to gauge the completeness, adequacy and effectiveness of an existing EIA system, at different points and stages, in a variety of cultural and political contexts.

Table 2.2 Mechanisms of Control (Ortolano, 1993)

- **Judicial Control** : court has power to judge allegations of inadequate attention to EIA but does not have direct control over the project proponent in relation to EIA compliance.
- **Procedural Control** : centralised administrative unit promulgates EIA requirements but do not have power to modify projects.
- **Evaluative Control** : centralised administrative unit issues recommendations to decision makers based on an appraisal of the proposed project and the EIA.
- **Development Aid Agency Control** : multilateral or bilateral lending institutions requires an EIA before it makes a final decision to fund a project.
- **Professional Control** : project planners have professional standards and codes of ethical behaviour that lead them to undertake EIAs for proposed projects.
- **Direct Public and Agency Control** : citizens or government agencies apply pressure to influence the EIA process, but outside the context of the above listed control.

Table 2.3 Quality Control Mechanisms

1. **Legislative Control** is to provide a legal foundation and guidance for the development and implementation of the EIA system.
2. **Procedural Control** is to stipulate clear sequential steps to be followed by all participants and the associated activities to be undertaken in the EIA process.
3. **Evaluative Control** is the assessment on the proposed project before, during and after its EIA study, as well as the auditing of the EIA system itself.
4. **Professional Control** is concerning the qualification of various participants (EIA administrators, reviewers, consultants and proponents), and the improvement of their knowledge, experience and skills related to EIA.
5. **Public/Relevant Agency Control** is related to the involvement and contribution of the public, interested groups and relevant agencies in strengthening the effectiveness of EIA.
6. **Administrative Control** is to provide a mechanism for management and administration of the EIA system by the responsible core governmental agency, and also channels for dealing with administrative appeals occurred in EIA implementation.
7. **Judicial Control** is to provide channels for resolving judicial appeals regarding the legal process of EIA, in order to safeguard the procedural legality and fairness of EIA implementation.
8. **Follow-up Control** is to monitor the compliance and enforcement of EIA results to ensure that the decisions on EIA cases are truly and effectively implemented.
9. **Instrumental Control** is to use impetus and supports (financial, technical and man-power) from international forces to initiate and/or develop the national EIA system, as well as strengthen its capacity building.

The logic behind the sequential order of the Quality Control Mechanisms is as follows. Firstly, it begins with the Legislative Control (2.3 - 1)[c] which lays down the foundation for the development and implementation of the EIA system. The availability and adequacy of relevant environmental policies, regulations and guidelines are important in deciding whether EIA is legally enforceable, in terms of implementation, compliance and enforcement, as well as appeals and dispute settlement. The EIA technical guidelines are particularly useful for the participants to provide guidance in respect of screening, scoping, preparation of EIA reports for the various types of development, public consultation, EIA review, appeals and dispute settlement, as well as compliance and enforcement.

Secondly, the Mechanisms of Procedural Control (2.3 - 2), Evaluative Control (2.3 - 3), Professional Control (2.3 - 4) and Public/Relevant Agency Control (2.3 - 5) are interrelated and interact in the EIA process. A complete, explicit, transparent and comprehensive EIA procedure provides the mechanisms for the administration of EIA cases, and the steps and paths for the involvement of the actors in the process. It includes the requirements of screening, scoping, site visits, EIA report preparation, public consultation, EIA review, decision-making, and appeals and dispute settlement. In respect to Evaluative Control, the decisions on EIA screening, conducting the EIA study for the proposed project, review of the EIA reports and EIA compliance monitoring results, are important to the success of EIA practice. Also, a periodic auditing of the EIA system will improve the system's performance in the light of experience. As for Professional Control, it focuses on the ability and capability of the various participants in dealing with EIA cases. EIA training and qualification control for the various actors involved are important considerations. Public/NGOs involvement in EIA has always been one of the most important objectives of the EIA exercise. Appropriate participation of the public, interested groups and relevant agencies throughout the various stages of the EIA procedure and the follow-up, is the core spirit of Public/Relevant Agency Control which

[c] Items in Table 2.3 are referred to throughout the text by table and item number, e.g. 2.3 - 1.

provides grounds and paths for building up mutual understanding and consensus, and can avoid/minimise confrontations at the earliest possible opportunity.

Thirdly, Administrative and Judicial Controls (2.3 - 6, 7) are related to the decisions-making and the outcome of EIA cases. The existence of Administrative Control requires a core environmental agency in place, which has responsibility for the development and management of the EIA system and supervision over its implementation by various participating authorities. A superordinate body (a high-level governmental unit) is needed to act as a referee to handle appeals and dispute settlement concerning the decisions on EIA cases. The involvement of judicial agencies in overseeing the compliance of the EIA legal requirements by participating agencies, in interpreting the EIA regulations, and in resolving appeals and disputes regarding the legal process of EIA, can ensure the procedural rights of EIA.

Fourthly, Follow-up Control (2.3 - 8) is related to the post-EIA actions, both in-progress monitoring and after-action follow-up. EIA compliance monitoring and enforcement not only ensures full compliance with EIA results by project proponents, but also feedback information to improve the techniques and methodologies used in EIA studies and to modify the environmental management plans of the proposed projects by which environmental performance can be improved. Finally, Instrumental Control (2.3 - 9) represents the influence of international forces on national EIA practice.

2.4. METHOD SELECTION

After an intensive research and literature review, the combined techniques of document review, on-site observations and interviews, and questionnaire survey were selected to achieve the objectives of the study. Extensive preparatory work was undertaken prior to the field work. A preliminary literature review of relevant EIA information of the case study countries was carried out to obtain a general draft picture of the EIA systems in

place. A list of questions based on the literature review, was formulated which was used to gather quantitative data in the interviews during the field trips to each studied country. Open-end questions were also included to generate useful qualitative data. On-site observations and participation provided opportunities to gain first hand experience and understanding about EIA implementation in practice. A questionnaire survey was also adopted in the study while examining the implementation of EIA by local planing authorities in the UK. The survey questionnaire used is given in **Appendix A**.

2.5. FIELD WORK

Following the preliminary literature review and preparation of the research plans in the UK, field trips were undertaken to the selected countries in South-East Asia, during the period of 1992 to 1994. The study in the UK was mainly conducted in 1993, which also included a questionnaire survey sent to local planning authorities from April to July 1993. A field trip was made in early November 1993, visiting the Malaysian Department of Environment. This was followed by a study at the Indonesian Environmental Impact Management Agency in late November 1993. The field work in Taiwan was carried out in September 1992 and January 1994. A visit was also made to India in 1992 but, in view of the rapidly changing situation there, it was concluded that data collected was already out of date.

During the field work, interviews were carried out with persons involved in, and/or familiar with, the individual EIA systems, including government officials in various participating agencies, consultants, academia and the members of NGOs. Interviews were conducted in a variety of ways. Questions were specially designed for each interviewee by modifying the generic interview questionnaire. Some questions were intended to gather specific information, for example EIA administrative and implementing procedures, compliance monitoring and enforcement, and EIA training. Others were more

open-ended and aimed at revealing the strengths and constraints of the current system, and factors in shaping the EIA practice and their influence or impacts on the development of the national EIA system. As far as possible, the interviewees were asked to engage in the discussions as individuals to provide their personal experience and knowledge related to EIA, rather than act on behalf of their organisations and positions. All the interviewees were assured that their comments would remain in confidence and would not be attributed to them personally without seeking their approval. Locally available written material/documents related to EIA were collected during the field trips. These included government policy statements, EIA regulations and guidelines, EIA reports from public or private sectors, academic studies, study reports by intra- and extra-national interested groups and studies by international agencies (e.g. UNEP, World Bank, Asian Development Bank). This information was used to verify, facilitate and augment the interview data.

2.6 ANALYSIS OF RESULTS

In the first stage of result analysis, the gathered information and data on the EIA systems from the studied countries were examined using the factors and elements defined in the scope of the study. The study findings formed the material in PART II (**Chapter 3** to **6**) of the thesis. In the second stage, based on the case study results and the scope of the study, the effectiveness of Quality Control Mechanisms in the case study countries was discussed. An EIA Evaluation Model was formulated for the purpose of comparative evaluation. A comparative evaluation of the four EIA systems was then undertaken. This was followed by a discussion of the results of this comparative evaluation. A conceptual framework for a comprehensive EIA system was then developed in the light of the overall study findings, and in association with the Quality Control Mechanisms and the working hypothesis addressed earlier in **Chapter 1**. The last part of this work comprised the material in PART III (**Chapter 7**) of the thesis. It closes with recommendations for further study.

CHAPTER 3.

ENVIRONMENTAL ASSESSMENT IN THE UNITED KINGDOM

3.1 INTRODUCTION

The current implementation of EIA developed progressively on an ad-hoc basis in the UK from the 1970's onwards. Some developers conducted EIAs for some major projects on a voluntary basis, e.g. Wytch Farm Oilfield Development by British Petroleum Company, and in some cases more formal procedures were put in place, e.g. the Department of Transport produced a Manual of Environmental Appraisal for Highway Schemes in 1983 (*UK Department of Transport 1983*).

The European Community began to recommend EIA to its Member States in 1985 and the recommendation became a mandatory requirement by 1988. The motive behind the Directive was as much economic as environmental, as the common European market required that the consideration of environmental impacts should be homogenous and an integral part of environmental management and planning across the countries of the European Community (*Fuller 1991*). To respond to the EIA requirements, the British Government has introduced a series of Regulations, Circulars and Guidance to implement EIA. In British documents, the terms of EIA and EIS originally adopted in the USA are referred as environmental assessment (EA) and environmental statement (ES) respectively. The definition of EA in the British context is essentially a technique for drawing together systematically expert quantitative analysis and qualitative assessment of a project's environmental effects, and presenting the results in a way which enables the importance of predicted effects, and the scope for modifying or the mitigation of them, to

be properly evaluated by the relevant decision-making body before a decision is given (*UK DOE 1988*).

3.2 EVOLUTION OF THE ENVIRONMENTAL ASSESSMENT SYSTEM

In the UK, environmental protection has been an objective of the current planning system from its inception. It was a feature of the 19th century legislation on public health, devised to cope with a rapidly urbanising Britain. It provided one of the foundations in the evolution of the British 20th century planning system. The aims of the Housing and Town Planning Act 1909 embodied protection of safety, convenience, and amenity. These powers were enlarged in the 1932 Town and Country Planning Act. In the progression to the 1947 Town and Country Planning Act and beyond, the scope of environmental protection has been extended to cover the aspects of open space, areas of natural beauty, green belts, areas of scientific interest etc.. Nevertheless, in spite of these early and prescient concerns, the planning system and profession were, following World War II, ill prepared to respond to the rapidly growing world awareness of man's impact on natural resources and the environment, and the need to take fuller measures for their protection (*Lichfield 1992*). After the inauguration of the NEPA in the USA in 1970, the development of EIA provided an opportunity to integrate environmental considerations into the planning system.

After 10 years gestation and more than 50 drafts, the EC Directive 85/337/EEC on "*the assessment of the effects of certain public and private projects on the environment*" (EIA Directive) was finally approved by the Council of Ministers in June 1985 (*Commission of the European Communities 1985*). Article 2(1) of the EIA Directive requires that "*Member States shall adopt all measures necessary to ensure that, before consent is given, projects likely to have significant effects on the environment by virtue inter alia, of*

their nature, size or location are made subject to an assessment with regard to their effects". The EIA Directive was part of the Third Environmental Action Programme of the European Community, of which the main principles were "prevention is better than cure" and "the polluter pays". Member States were given three years to incorporate the requirements of the EIA Directive into their national regulations. Under the European Communities Act 1972, the UK is bound to accept the EIA Directive as the control document which sets out the rules for EIA of major developments in the UK. However, when the EIA Directive was first formulated, the UK legislators argued that the British planning system had already incorporated the environmental considerations laid down in the Directive and there was no need to introduce further controls. They considered the EIA Directive as an unnecessary and undesirable burden (*Fortlage 1990*). This argument was overruled. Nevertheless, the Directive permits Member States to incorporate EIA into their existing procedures for development consent and UK has chosen this mechanism. The objective of the UK Government was to ensure that the requirement for an EA was integrated within the existing decision-making system, rather than by implementing primary legislation (*Ball 1991; Coles 1992*). It has been observed that the general tenor of the British Government's approach to EIA has been, from its outset, grudging and minimalist (*Sheate 1994*). Following the enactment of the Town and Country Planning (Assessment of Environmental Effects) Regulations 1988 (TCPR 1988) (*Great Britain, SI No.1199 1988*), EIA has formally and legally become an integral requirement of the planning control system.

3.3 GOVERNMENTAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT AND PROTECTION

One of the most important features of environmental protection in the British system is that many powers are decentralised by being given to a range of regulatory agencies (*Ball*

& Bell 1991). The number of different agencies involved in environmental protection reflects the fragmented nature of policy-making and law enforcement in this area.

3.3.1 CENTRAL GOVERNMENT

3.3.1.1 Environmental Protection Authorities

The Department of the Environment (DOE) was established in November 1970, under the Secretary of State for the Environment. The DOE has the major responsibility within the Central Government for environmental affairs in England. The functions of the DOE are not only concerned with environmental protection, but also cover a very wide portfolio, including responsibilities for housing, local government, the water industries, countryside, sport and recreation, town and country planing, urban renewal, new towns, pollution control (including radioactive waste management), the administration of the planning system, and the construction industry, as well as the conservation and protection of monuments and buildings of historical interest (*Hall 1991*). The DOE has a network of Regional Offices which are responsible for building projects, land-use planning and large scale developments, regional infrastructure and local transport (*UK DOE 1992*).

The Welsh Office has much the same responsibilities in Wales as those of DOE in England. In Scotland, the Scottish Office Environment Department administers government policies relating to local government, town and country planning, housing, roads, nature conservation, pollution control and environmental services generally (*Scottish Office 1993*). In Northern Ireland there is a separate Department of the Environment for Northern Ireland.

3.3.1.2 Other Parts of the Central Government

Since the DOE is not the only part of Central Government which sets policies in relation to environmental affairs, other governmental Departments and Ministries have also

played important roles in particular sectors related to their fields. For example, the Department of Trade and Industry is responsible for prevention of marine pollution and for air transport. Waste disposal at sea and fishing are under the jurisdiction of the Ministry of Agriculture, Fisheries and Food (MAFF). The Department of Employment through the Health and Safety Executive is responsible for the inspection of all nuclear installations. The control of pollution from vehicles is largely the responsibility of the Department of Transport, whilst many policy decisions of central importance to global warming and acid rain are made by the Department of Energy. The White Paper, "*This Common Inheritance: Britain's Environmental Strategy*", suggested that each governmental Department should have a nominated Minister responsible for considering the environmental implication of its policies and programmes (*Secretary of State for the Environment et al. 1990*).

3.3.1.3 Parliamentary Select Committees

In the House of Lords, the European Communities sub-committee has the important task of analysing the potential impact of proposed EC legislation. In the House of Commons, the Select Committees are organised so as to mirror Government Departments. The Select Committee on the Environment has an influence on the direction of environmental policy.

3.3.1.4 Royal Commission on Environmental Pollution

This Royal Commission was set up in 1972 as an independent body to advise on pollution problems of national and international importance. They have produced 13 reports on a variety of environmental matters. Although by no means all the recommendations of the Commission are implemented, the Government will as a rule prepare some form of response to them since the Commission's recommendations cannot be easily ignored politically.

3.3.1.5 Her Majesty's Inspectorate of Pollution (HMIP)

The HMIP was established in 1987. The intention was to provide a more systematic and coherent approach to pollution control. It brought together the Industrial Air Pollution Inspectorate of the Health and Safety Executive, and the Radiochemical, Hazardous Waste and Waste Water Inspectorate of the DOE. HMIP has responsibility in England and Wales for operating the system of Integrated Pollution Control, under the Environmental Protection Act 1990 (*Great Britain 1990a*), the control of scheduled processes under the air pollution regulation, the control of radioactive substances, and the monitoring of waste disposal. HMIP has three Regional Offices which deal with all aspects of pollution in their areas. These Regional Offices are supported by a Central Regulatory Standards Division, which coordinates guidance and technical standards.

3.3.1.6 National Rivers Authority (NRA)

The NRA has been in existence since September 1989, when it was established under the Water Act 1989. The NRA is an independent, non-departmental public agency. It has taken over many of the regulatory powers of the old regional water authorities and has responsibility in England and Wales for a wide range of water matters. The NRA is responsible for a variety of tasks, including i) pollution control of inland, underground and coastal water, ii) flood defence, iii) land drainage, iv) water resources and the licensing of abstraction, and v) salmon and freshwater fisheries.

Under the Water Act 1989, the NRA is also placed under a duty of natural conservation in relation to water matters. The NRA has a regional structure, based on the old regional water authority regions. Each of these regions has a consultative Regional Rivers Authority Committee set up under the Water Act 1989. There is a further Advisory Committee for Wales. In Scotland, there are River Purification Boards.

3.3.1.7 Countryside Bodies

In England there is a Natural Conservancy Council for England (known as English Nature) and a Countryside Commission, which have responsibilities for nature conservation and for recreation, landscape and amenity respectively. In Wales, a Countryside Council for Wales is responsible for the amenity and natural conservation. In Scotland, the Scottish Nature Heritage has been set up, by merging the Nature Conservancy Council for Scotland and the Countryside Commission for Scotland since April 1992, under the Natural Heritage (Scotland) Act 1991. In addition, there is the Forestry Commission which has some environmental and amenity duties as well as duties related to the promotion of commercial forestry.

3.3.1.8 The Proposed Environmental Agencies

In July 1991, the Prime Minister, John Major, announced the Government's intention to introduce unified environmental agencies. The draft of the Environmental Agencies Bill, which provides for the establishment of the Environmental Agency for England and Wales and the separate Scottish Environmental Protection Agency, was published in 1994. The two new agencies will be independent, non-departmental, corporate, public bodies, operating through a board appointed by the Government. The Bill also provides for an Advisory Committee for Wales, regional environmental protection advisory committees, regional and local fisheries advisory committees, and for the continuation of the regional and local flood defence committees. In England and Wales, the Environmental Agency brings together the NRA, HMIP and waste regulation authorities, all of which will be abolished. The Scottish Environmental Protection Agency will take over the functions, property, rights and liabilities of the River Purification Boards, Her Majesty's Industrial Pollution Inspectorate and the waste regulation authorities.

Ball (1994) argued that "one disappointing thing about the Bill is that there are hardly any new legal powers, apart from a general duty to compile reports on the state of the

environment". In addition, some of the important tasks, i.e. town and country planning and EA, nature conservation and countryside protection, remain outside the remit of the agencies. These new agencies are expected to come into operation in April 1996. How this change in the framework of the governmental environmental administration will effect and/or improve the work of environmental management and protection, remains to be seen. In the short term, the creation of these agencies and the introduction of the 1995 Environment Act may not make a significant difference to the effectiveness of EA. Nevertheless, in the medium and long term, coordination provided by the Environmental Agencies of the separate consents for discharges of pollution into the rivers, air and on land should provide LPAs with more integrated pollution control information for decision-making. At present, the HMIP/NRA (statutory consultees) can object to development at the EA stage or much later at the planning consent stage. It would clearly be advantageous if project proponents were made aware of any possible objections by the statutory consultees at the EA stage. A possible solution is for the proponents to apply for planning and Integrated Pollution Control consents at the same time. The existence of Environmental Agencies would make the whole process of consent application simpler and more straightforward.

3.3.2 LOCAL GOVERNMENT

In England and Wales, there have been two separate structures for local government. In metropolitan areas, this is a one-tier system, the Metropolitan District Councils. In non-metropolitan areas, there is a 2-tier system of County and District Councils. The Greater London area has been divided into a number of London Borough Councils. In Scotland, there is a 2-tier system of Regional and District Councils. Currently, there are 36 Metropolitan District Councils (EM), 32 London Borough Councils (EL), 39 County Councils (EC), 296 District Councils (ED) in England, 8 County Councils (WC), 37 District Councils (WD) in Wales, and 9 Regional Councils (SR), 53 District Councils (SD) and 3 Island Councils in Scotland, and 26 District Councils in Northern Ireland, all

of which undertake a wide variety of tasks in relation to environmental protection (*Rusbridge 1993*). In England and Wales, County Councils have responsibilities for transport, highways, waste management, mineral control and strategic planning. Under the Control of Pollution Act 1974, the County Councils are the waste disposal authorities. In Wales, this task is taken by the District Councils. The County Councils have become the waste regulation authorities after the Environmental Protection Act 1990. District Councils have responsibility for housing development control, local planning and development control, public and environmental health, food hygiene, dangerous building and animal protection. In the present framework, it is, sometimes, difficult for the public to identify which tier is responsible for any particular matter. It is particularly acute in environmental matters because of the overlapping powers of the two tiers (*Ball & Bell 1991*).

3.4 REGULATIONS AND GUIDELINES RELATING TO ENVIRONMENTAL ASSESSMENT

In order to implement the EIA Directive, the Government has introduced a series of Statutory Instruments since July 1988. The UK regulations subdivide projects requiring assessment into those which are subject to development control in the planning system under the Town and Country Planning Act and those projects outside such control, including afforestation, harbour, highways etc.. The former are managed by the DOE whilst for the later there are special EA regulations, administrated by various Departments and Commissions but requiring consultation with the DOE.

For projects requiring assessment, the Town and Country Planning (Assessment of Environmental Effects) Regulations 1988 (TCPR 1988) - Statutory Instrument (SI) 1199/88, was enacted and came into effect in July 1988 which has formed the legal basis for EA in England and Wales. Similar regulations, the Environmental Assessment

(Scotland) Regulations, SI No.1221 1988 (*Great Britain, SI No.1221 1988*) and the Planning (Assessment of Environmental Effects) Regulations (Northern Ireland), Statutory Rules (SR) 20 1989 (*Great Britain, SR No.20 1989*), were also introduced for Scotland and Northern Ireland respectively. Advice on implementation of the new EA Regulations in England and Wales was set out in the DOE Circular 15/88 {Welsh Office (WO) 23/88} (UK *DOE 1988*). An equivalent Circular applies in Scotland {Scottish Development Department (SDD) Circular 13/88} (*SDD 1988*). The EA Regulations in relation to the implementation of the EIA Directive are shown in the **Table 3.1**.

There are two lists of development, Schedule 1 and 2, set out in the TCPR 1988, which are based upon Annex I and II of the EIA Directive. For projects listed in Schedule 1, EA is required for every case whilst Schedule 2 projects only require EA if they are likely to have "*significant*" environmental effects by virtue of factors such as their nature, size or location. The DOE Circular 15/88 suggests that there are three main criteria of significance, including i) whether the project is of more than local importance, especially in terms of physical scale, ii) whether the project is proposed to be located in particularly sensitive or vulnerable areas, and iii) whether the project is thought likely to give rise to particularly complex or adverse effects. Nine categories of project are listed in Schedule 1, which include:

i. A crude-oil refinery or an installation for the gasification and liquefaction of 500 tonnes or more of coal or bituminous shale per day.
ii. A thermal power station or other combustion installation with a heat output of 300 megawatts or more, other than a nuclear power station or other nuclear reactor.
iii. An installation designed solely for the permanent storage or final disposal of radioactive waste.
iv. An integrated works for the initial melting of case-iron and steel.
v. An installation works for extraction of asbestos or for the processing and transformation of asbestos or products containing asbestos.
vi. An integrated chemical installation.

Table 3.1 Environmental Assessment Regulations

England and Wales				
No	SI No.	Year	Regulations	Competent Authority
1	1199	1988	Town and Country Planning (Assessment of Environmental Effects) Regulations (TCPR)	LPA
2	367	1990	TCPR (Amendment)	LPA
3	1494	1992	TCPR (Amendment)	LPA
4	1218	1988	Environmental Assessment (Salmon Farming in Marine Waters)	Crown Estate Commissioners
5	1207	1988	Environmental Assessment (Afforestation) Regulations	Forestry Commissioners
6	1217	1988	Land Drainage Improvement Works (Assessment of Environmental Effects) Regulations	MAFF, SOS for Wales
7	1241	1988	Highways (Assessment of Environmental Effects) Regulations	SOS for Transport, SOS for Wales
8	1336	1988	Harbour Works (Assessment of Environmental Effects) Regulations	MAFF, SOS for Transport, SOS for Wales
9	424	1989	Harbour Works (Assessment of Environmental Effects) (No.2) Regulations	MAFF, SOS for Transport, SOS for Wales
10	1272	1988	Town and Country Planning General Development(Amendment) Order	LPA
11	167	1989	Electricity and Pipeline work (Assessment of Environmental Effects) Regulations; Note: revoked	SOS for Energy
12	442	1990	Electricity and Pipeline Works (Assessment of Environmental Effects) Regulations	SOS for Energy
13	2414	1992	Town and Country Planning (Simplified Planning Zones) Regulations	SOS for the Environment, SOS for Wales
14	2902	1992	Transport and Works (Application and Objections Procedure) Rules	SOS for Transport
15	677	1994	TCPR (Amendment)	LPA
16	678	1994	Town and Country Planning General Development (Amendment) Order	LPA
17	1002	1994	Highways (Assessment of Environmental Effects) Regulations	SOS for Transport, SOS for Wales

(continued)

Table 3.1 Environmental Assessment Regulations (continued)

Scotland				
No.	SI No.	Year	Regulations	Competent Authority
18	1221	1988	Environmental Assessment (Scotland) Regulations	LPA
19	977	1988	Town and Country Planning (General Development) (Scotland) Amendment Order	LPA
20	1249	1988	Town and Country Planning (General Development) (Scotland) Amendment No. 2 Order	LPA
21	224	1992	Town and Country Planning (General Development Procedure) (Scotland) Order (Article 16)	LPA
22	1241	1992	Harbour Works (Assessment of Environmental Effects) Regulations	SOS for Scotland
23	2012	1994	Environmental Assessment (Scotland) Amendment Regulations	LPA

Northern Ireland				
No.	SR No.	Year	Regulations	Competent Authority
24	344	1988	Roads (Assessment of Environmental Effects) Regulations (Northern Ireland) (revoked)	DOE for N.I.
25	20	1989	Planning (Assessment of Environmental Effects) Regulations (Northern Ireland)	DOE for N.I.
26	226	1989	Environmental Assessment (Afforestation)	DOA for N.I.
27	181	1990	Harbour Works (Assessment of Environmental Effects)	DOA & DOE for N.I.
28	376	1991	Drainage (Environmental Assessment) Regulations; Note: in preparation	DOE for N.I.
29	3160	1993	Roads (Northern Ireland) Order (NI15) (Article 67)	DOA for N.I.
30	426	1994	Planning (Simplified Planning Zones) (Excluded Development) Order (Northern Ireland)	DOE for N.I.
31	316	1994	Roads (Assessment of Environmental Effects) Regulations (Northern Ireland)	DOE for N.I.
32	395	1994	Planning (Assessment of Environmental Effects) (Amendment) Regulations (Northern Ireland)	DOE for N.I.

Note:
SOS: Secretary of State
DOE: Department of the Environment
MAFF: Ministry of Agriculture, Fisheries and Food
LPA: local planning authority
N.I.: Northern Ireland
SI: Statutory Instrument
SR: Statutory Rules
DOA: Department of Agriculture

vii. A special road; a line for long-distance railway traffic; or an aerodrome with a basic runway length of 2,100 m or more.

viii. A trading port, an inland waterway which permits the passage of vessels of over 1,350 tonnes for inland waterway traffic capable of handling such vessels.

ix. A waste-disposal installation for the incineration or chemical treatment of special waste.

According to Schedule 1 of the Town and Country Planning Act 1990 (*Great Britain 1990b*), projects requiring planning permission can be classified into two categories, County matters and District matters. County Councils are responsible for mineral extraction and waste disposal. District Councils are responsible for other development control decisions. In Schedule 3 of the TCPR 1988, the requirements on the content of an ES, which are based on Articles 3 and 5 of, and Annex III to, the EIA Directive, are set out. Paragraph 2 of Schedule 3 lists the 'specified information' which must be contained in an ES. Paragraph 3 details further information which may be included by way of explanation or amplification of any of the specified information. Nevertheless, no formal format for an ES has been clearly defined.

EA in the UK has thus been implemented through secondary regulations from its outset. It was not until 1991, the Government finally accepted the need for primary legislation for EA and included it in the Planning and Compensation Act 1991 (*Great Britain 1991*). Section 15 of the Act grants a power to the Secretary of State to introduce regulations for requiring EA for projects other than those listed in Annex I or II of the EIA Directive. On 25th of February 1991, the Convention on EIA in a Transboundary Context, elaborated under the auspices of the United Nations Economic Commission for Europe, was adopted and signed by 29 countries and the European Union at Espoo, Finland (*UNECE 1991*). In this Convention, measures and procedures are prescribed to prevent, control or reduce any significant adverse environmental impacts, particularly any transboundary effect.

Since 1988, Member States of the European Community have formally implemented EA. There were arguments and criticisms relating to the deficiencies of the EIA Directive, because it was particularly vague on matters of public participation and also upon the issues of scoping and screening exercises in the EA procedure. In addition, the Directive gives Member States considerable discretion as to matters of implementation. These have resulted in inconsistencies of application of EA within the European Union (*Alder 1993*). In order to improve the situation, the European Commission launched a project to review the implementation of the EIA Directive by Member States and published the review report in April 1993 (*Commission of the European Communities 1993*). The report concluded that the EIA process was, in many cases, not starting early enough and that there was often inadequate quality control of the EIS and the EIA process as a whole. Sheate (1993) argued that "the report failed to address what is probably the greatest weakness of the current EIA Directive: that is, it applies only to project level EIA". Based on the conclusions of the review report, the European Commission proposed amendments to the EIA Directive on 16th of March 1994 (*Commission of the European Communities 1994*). These amendments have yet to be ratified by the Council of Ministers. Major changes were made in Article 4, 5 and 7, accompanied by a number of other less substantial amendments. In the new Article 4, EA will be required for Annex II projects which are to be located in or near the special protection areas designated by Member States pursuant to Community law. The new Article 5 introduces a scoping process. The new Article 7 takes the Espoo Convention into account and outlines the procedures to be followed by the Member States in relation to projects with transboundary effects.

TCPR 1988 was amended in April 1994 (*Great Britain, SI No.677 1994*), following a review and consultation in 1992. In the 1994 Amendment the categories of project subjected to EA are extended in England and Wales, adding privately financed toll road projects to Schedule 1 and wind generators, motor way services areas and coast protection work projects to Schedule 2. In the EA procedure, any further information (if requested by the competent authorities) must be made available for public scrutiny.

Moreover, the Secretary of State may only give direction to exempt projects subjected to EA in accordance with Article 2(3) of the EIA Directive.

In October 1994, the DOE published a research report, Good Practice Guide on the Evaluation of Environmental Information for Planning Projects, (*UK DOE 1994a*). This report contains a review of the procedures used by planning authorities to handle ESs, evaluation of other environmental information and adequacy of ESs, and methods and techniques of evaluation and their potential use. A Good Practice Guide was published in late 1994 (*UK DOE 1994b*). Moreover, a draft guidance on the preparation of ESs for projects requiring planning permission was issued for consultation in July 1994, and the guidance will be published in the middle of 1995 (*Zetter 1994*).

3.5 ENVIRONMENTAL ASSESSMENT PROCEDURES

3.5.1 EA PROCEDURE IN ENGLAND AND WALES

Except for the DOE Circular 15/88, a formal guidance principally used by the local planning authorities (LPAs), the DOE has also published a useful document, "*Environmental Assessment: a guide to the procedures*" (*UK DOE 1989*), for use principally by applicants. The following discussion on the EA procedure applied in England and Wales, is based on these two documents.

3.5.1.1 Preliminary Consultation

Before applying for planning permission, the applicant can decide for himself whether EA is necessary and submit ESs on a voluntary basis. However, the TCPR 1988 also enables him to apply to the LPA for an opinion on the need for EA. In order to do that, the applicant should provide sufficient information relating to the proposed development to the LPA. After taking into account the relevant information, the LPA should give an opinion and inform the applicant within three weeks. If the applicant does not agree with

the adverse decision given by the LPA, he has a right to appeal to the appropriate Minister within three weeks (*in England, the Secretary of State for the Environment, or in Wales, the Secretary of State for Wales*) for a direction as to whether EA is required or not. The appropriate Minister should make a decision within 3 weeks, and then inform the applicant, the LPA and the statutory consultees (*see page 68*), in order to place the decision on the public record. Article 5 of the proposed amendments to the EIA Directive introduces a scoping procedure. Under this new procedure, the competent authorities will have to scope the environmental information required for an assessment, in agreement with the environmental authorities and in consultation with the proponents. However, this proposal was not included in the 1994 Amendment of Town and Country Planning (Assessment of Environmental Effects) Regulations 1988.

3.5.1.2 Submission of the Planning Application and ES

A planning application should be submitted with an ES. While preparing ESs, the applicant is recommended to consult statutory and non-statutory bodies. The applicant has to submit the ES and planning application to the responsible LPA and provide three additional copies of the statement for transmission to the Secretary of State (SOS). The applicant is then required to publish a notice in a local newspaper and to post notices on the site indicating where and when the ESs may be inspected (being a date not less than 20 days after that date on which the notice is published).

3.5.1.3 Handling of the Planning Application and ES

The LPA places the planning application on Part I of the Planning Register, together with the ES. Copies of ESs and relevant documents are also sent to the SOS and the appropriate DOE Regional Office for monitoring purposes. The LPA should notify the statutory consultees who receive ESs from the applicant, and invite them to comment on the ESs. There should be a minimum period of fourteen days for statutory consultees to

respond. If further information is required, this information should be given a similar level of publicity (since the 1994 amendments) to that initially given to the original ES. Three copies of the further information should be sent to the SOS. After considering comments from various sources, the LPA should give a decision on the planning application within sixteen weeks of its submission. The LPA should also put their decision and relevant information on the public record. The period of sixteen weeks can be extended by agreement. The LPA is requested to inform and send a copy of its notice of decision to the appropriate DOE Regional Office. The flow chart for the EA procedure is shown in **Figure 3.1** (*UK DOE 1989*).

3.5.1.4 Appeals and Call-ins

The applicant has a right to appeal to the SOS against an adverse decision by the LPA (or an authority's failure to give a decision within the sixteen weeks time limit). Moreover, the SOS has powers to call-in cases if he considers it necessary. After receiving the appeal, the SOS appoints an Inspector to handle the case. The Inspector may hold a local public inquiry or hearing and conduct a site visit. He will then report to the SOS who will make the final decision on the appeal (*The Planning Inspectorate 1992*).

3.5.2 EA PROCEDURE IN SCOTLAND

Generally speaking, the EA procedure adopted in Scotland is similar to that adopted in England and Wales, but with small differences in detail. The differences are described as follows (*Great Britain, SI No.1221 1988*):

i) The time period stipulated in the TCPR 1988 is changed in the Scottish context. Firstly, in preliminary consultation, if the LPA fails to give an opinion within four weeks, the proposed project will be regarded as a normal planning application and the preparation of ESs is not necessary. Secondly, The time limit of three weeks is replaced with four weeks. Thirdly, the time limit of two weeks for statutory consultees to comment on ESs is replaced with four weeks.

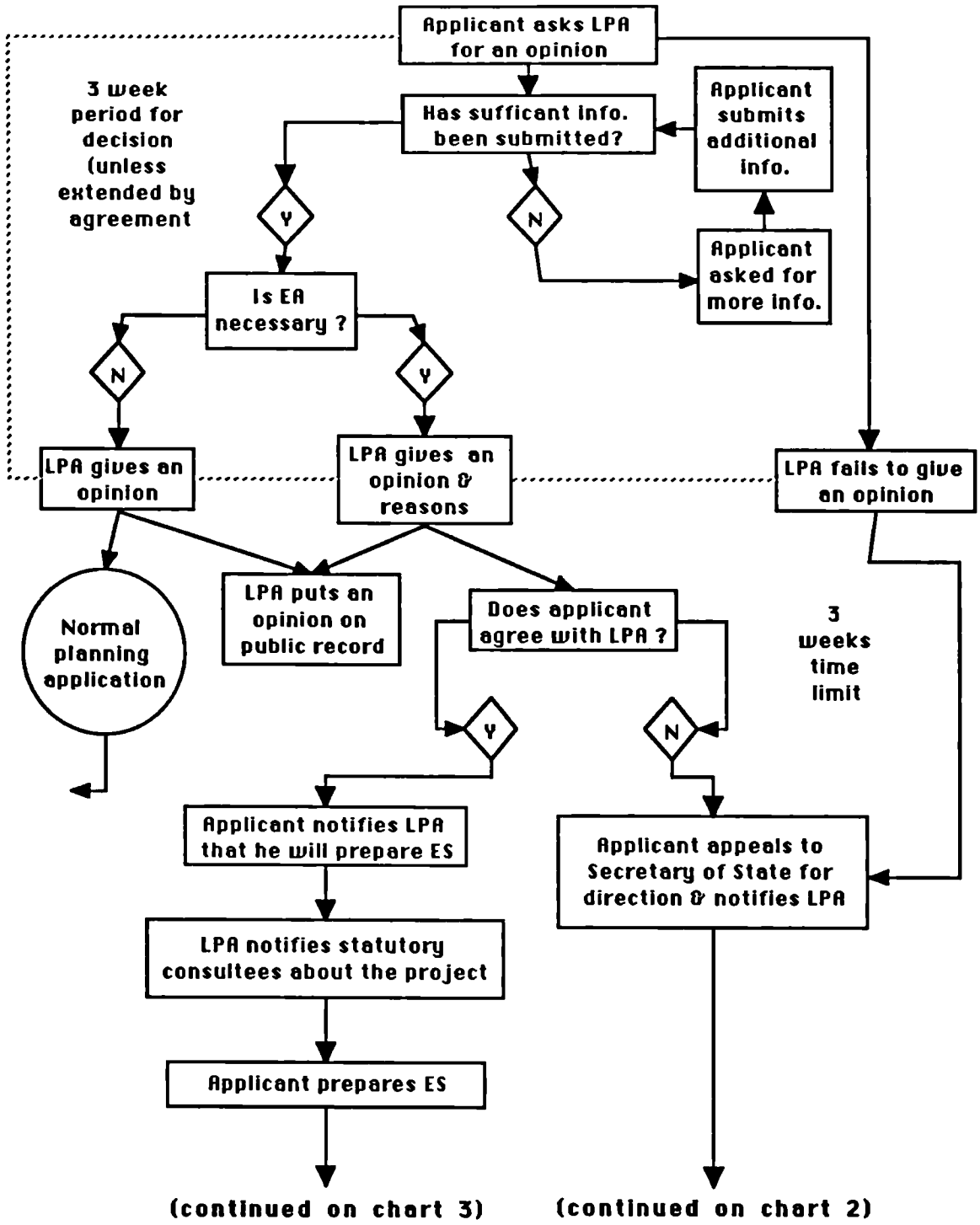


Figure 3.1 Environmental Assessment Procedure

(source: Environmental Assessment: a guide to procedures, 1989)

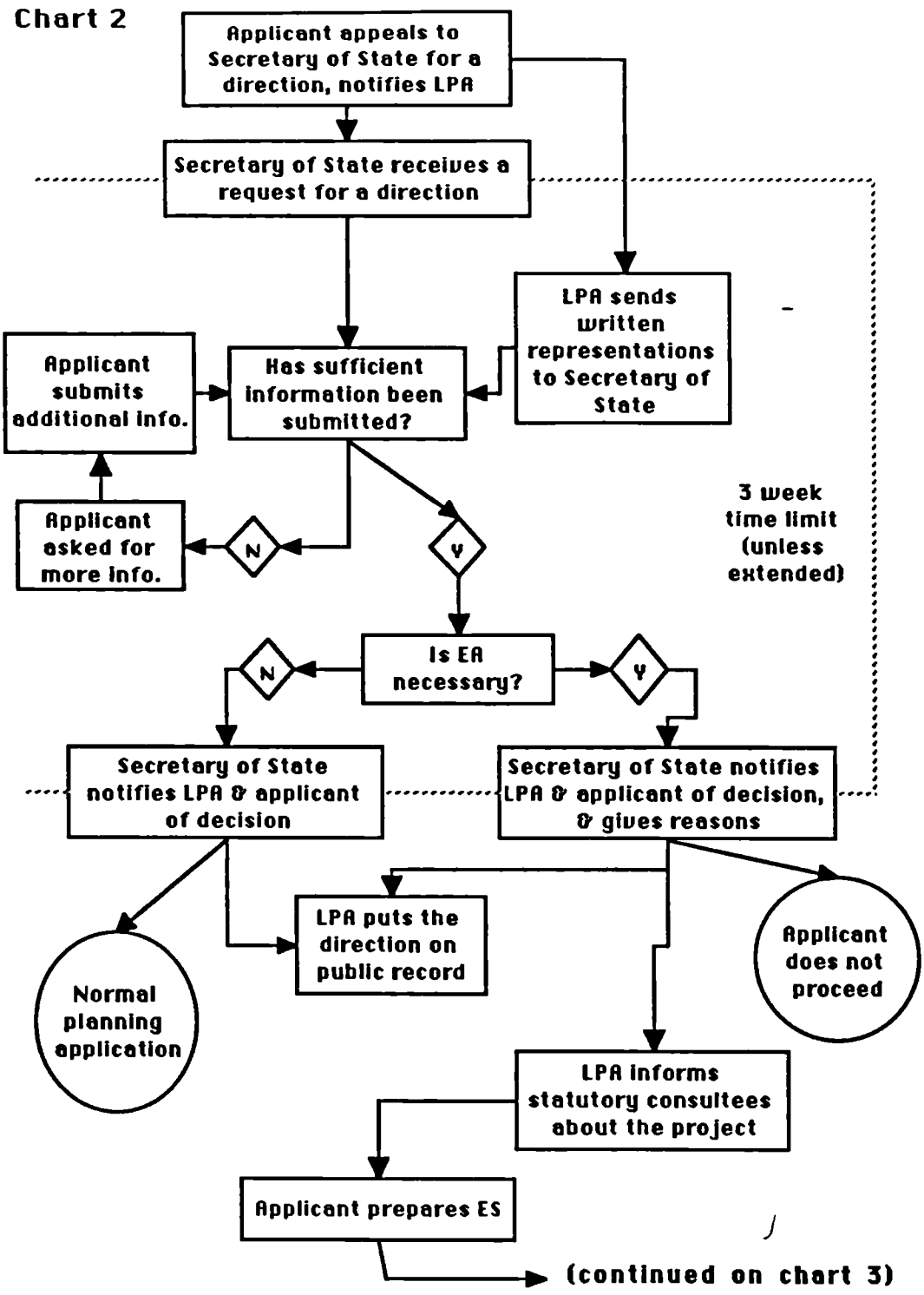


Figure 3.1 Environmental Assessment Procedure

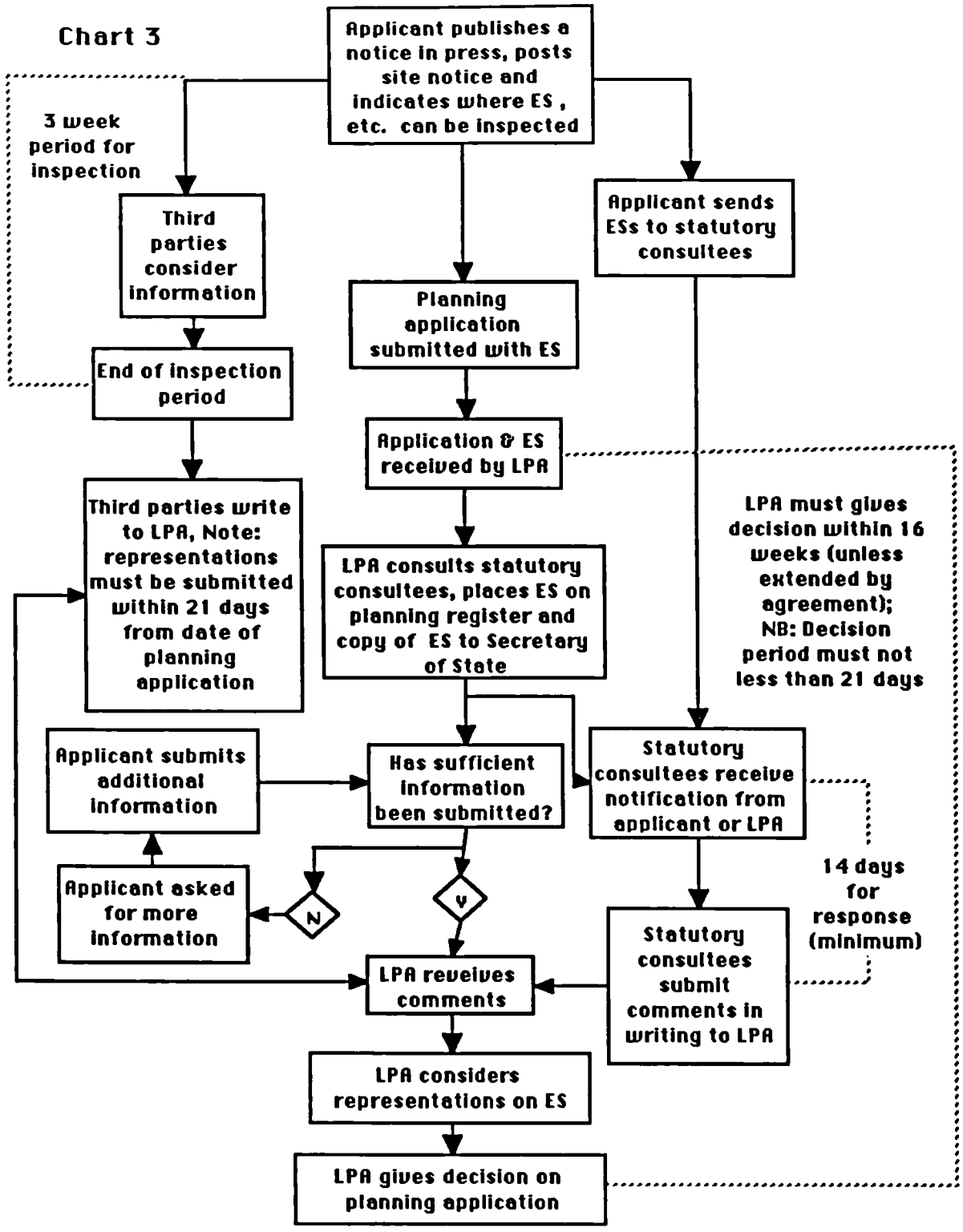


Figure 3.1 Environmental Assessment Procedure

ii) The term of Inspector adopted in England and Wales is substituted by Reporter.

iii) If the SOS for Scotland fails to give direction on the request from the applicant for a direction within four weeks, EA will be regarded as necessary.

3.5.3 EA PROCEDURE IN NORTHERN IRELAND

Nine Regulations relating to EA have been enacted for Northern Ireland since 1988. These Regulations cover various aspects which are illustrated in **Table 3.1**. For projects under the planning system, the EA procedure has some differences from those adopted in England/Wales and Scotland. In the EA procedure, the competent authority is the Department of the Environment for Northern Ireland. Local authorities (District Councils) act as one of the statutory consultees. If the applicant does not accept the adverse decision that EA is required, he can seek a hearing before the Planning Appraisal Committee. Moreover, the applicant can appeal to the Planning Appraisal Committee against the refusal of the planning application by the DOE for Northern Ireland (*Great Britain, SR No.20 1989*).

3.6 ROLE OF ACTORS INVOLVED IN THE EA PROCEDURE

There are a number of actors involved in the EA system. They have different responsibilities and functions at the various stages of the EA procedure. A brief discussion on various actors is as follows:

i) The applicant (developer): the person, company or authority who applies for planning permission for his (or their) proposed developments.

ii) Competent authorities: the authorities responsible for examining EA studies and issuing the planning permission to applicants. For projects under planning control, LPAs are competent authorities.

iii) The SOS for the Environment: he receives appeals against the LPA's decisions from applicants and makes decisions on the appeals, he also has powers of call-in.

iv) Inspector/Reporter: the one who is appointed by the SOS to handle appeals or call-ins.

v) Statutory consultees: According to the regulations, the statutory consultees are i) the authority or person listed in the Article 18 of the Town and Country Planning General Development Order 1988 (*Great Britain, SI No.1813 1988*), ii) any principle council for the area where the land is situated other then the LPA, iii) the English Nature and the Countryside Commission, in all cases, and iv) the chief inspector for England and Wales (Part I (c), Environmental Protection Act 1990), where appropriate. These consultees will be informed by competent authorities about the proposed projects. They have an obligation to make information in their possession available to applicants when applicants are preparing ESs. They are also invited to give comments on ESs at the later stage of the EA process.

vi) DOE Regional Offices: Copies of ESs and relevant documents will be sent to the appropriate Regional Office for monitoring purposes.

vii) The public and non-statutory bodies: They are encouraged to submit their opinions on the proposed projects in writing to the competent authorities.

Currently, ESs are not reviewed by independent EA review bodies. It is difficult to maintain the quality and objectiveness of EA review. For instance, for major developments subjected to the Private Bill procedure, ESs of the proposed developments are reviewed by a Parliamentary Committee which is unlikely to comprise experts. For example, the 10 volume ES published in November 1994 as part of the Channel Tunnel Rail Link Bill is to be reviewed by the both Houses of Parliament.

3.7 EA COMPLIANCE MONITORING AND ENFORCEMENT

One of the criticisms of the EIA Directive is that it makes no provision for monitoring the projects after EA approvals. Nor does it include any general enforceable right to

disclosure of information (*Alder 1993*). There were some voices from EA practitioners and researchers urging the incorporation of monitoring into the amended EIA Directive when the Directorate General XI prepared the proposal. However, the requirement of monitoring the effects of the construction and operation of projects initially included in the early drafts of the proposals, was dropped from the proposal accepted by the European Commission on 16th of March 1994. The Commission requires a cost-benefit analysis of such monitoring to be done before they will consider adopting of this requirement.

It is clear that the mandatory requirement of conducting monitoring programmes on proposed projects is absent in the current British EA Regulations. Due to the absence of such a requirement the competent authorities may impose planning conditions on the planning permission of the proposed project by which monitoring programmes will be required to be carried out by the applicant. The period of time required for monitoring depends upon the types of development. The planning permission and planning conditions are legally enforceable. If a breach of conditions occurs, LPAs can issue an "*enforcement notice*" requiring the breach to be remedied. Also, LPAs can issue a "*breach of condition notice*" requiring the developer to comply with the conditions within a specific period (not less than 28 days) or face prosecution. Wood (1994) argued that "although uncoordinated implementation monitoring takes place under planning and other legislation, it is unrelated to earlier stages in the EA process". It is, therefore, apparent that the absence of a formal mechanism for EA compliance monitoring and enforcement is one of the major shortcomings of the current EA system.

3.8 THE STATUS OF EA REPORTS

The ES is a outcome document of the impact assessment study prepared by the applicant for a proposed development. Although Schedule 3 of the TCPR 1988 prescribes the statutory provisions with respect to the content of an ES, there is no formal format of

presenting the information. This has resulted in inconsistencies in the presentation of ESs. Appendix 4 of "*Environmental Assessment: a guide to the procedures*" provides a checklist which is useful to the applicant while preparing ESs. Generally, an ES should contain the following information (*Kent County Council 1991*):

i) A description of background environmental status of the site where the proposed project will be located.

ii) A description of the proposed project and its likely effects on the environment.

iii) An analysis of the effects caused by the development on the environment.

iv) A description of proposed measures to mitigate the adverse environmental impacts.

v) A non-technical summary to explain the results of the EA study.

It is found that in many cases other aspects listed in Annex II of the EIA Directive, such as predictive methodologies used, alternatives studied, secondary and cumulative effects, are frequently left out by the applicants while preparing ESs.

3.9 EVALUATION OF CURRENT POSITION IN IMPLEMENTATION OF EA IN THE UK

In order to evaluate the current position regarding the implementation of EA by UK LPAs, a questionnaire survey was conducted, with special reference to non-statutory issues, from May to July 1993 (see **Appendix A**). Aspects investigated were: EA procedure adopted, scoping meetings, site visits, use of consultants for examining ESs, EA training for planning officers and the incorporation of EA in local/regional planning, Strategic EA (SEA).

3.9.1 METHODOLOGY

Questionnaires were sent to all regional local authorities {County Councils in England (EC); Metropolitan Councils in England (EM); London Borough Councils (EL); County

Councils in Wales (WC); and Regional Councils in Scotland (SR)}, and to a random selection of 1/3 (100) of District Councils in England (ED). In order to ensure adequate returns for analysis from Scotland and Wales questionnaires were sent to 2/3rds of the District Councils, for example 25 WD and 35 SD respectively. The total number of the questionnaires sent was 285. Out of 285 LPAs, 167 responded to the survey. The questionnaires were either completed by the director of Planning Department at each LPA or a delegated planning officer within the department. Persons completing the form were also asked for their personal experience on training courses. The survey returns were assessed numerically and are presented as percentage responses in a series of tables. Subsequent analysis of the tables was carried out to see if there were major differences in the variables either when examined in relation to the different tiers of local government or on a regional basis using the DOE regional classification.

3.9.2 SURVEY RESULTS

The survey results, based on different categories of LPA, were shown in **Table 3.2**. The data on ESs received by LPAs were provided by the Institute of Environmental Assessment (*IEA 1993*). The results relating to the costs of hiring consultants to assess ESs were shown in **Figure 3.2**. The results of EA training were shown in **Figure 3.3, 3.4** and **3.5**.

The UK is not uniform in terms of legislation, population density and major planning developments etc. The survey results have been analysed in order to examine any regional variation. This analysis on the survey data was carried out based on the DOE regional classification. For Wales and Scotland the geographical grouping is based on the original administrative regions. The results of this regional comparison of EA implementation and procedures were shown in **Table 3.3**. A sequential examination of linkages in the performance of EA was also carried out. The questions of this survey of EA in the UK can be grouped into 4 categories which may be taken in sequence. The first or primary

category consists of awareness and adoption of the recommended EA procedure. The second category is related to non-statutory actions taken by LPAs in the EA procedure, including scoping meetings and site visits. The third category is related to how LPAs overcome man-power or expertise problems while handling EA cases, by means of participation of local planning officers in EA training programmes or hiring consultants. The fourth category provides an indication of how LPAs may be intending to look ahead to the incorporation of EA into regional and strategic planning (SEA). It was decided to examine the possible links between these stages in EA process with the number of ESs received in the regions, and with each other. For the purpose of comparison, the results of all parameters have been ranked according to their corresponding percentage score individually and as combined categories. The results were shown in **Table 3.3, 3.4** and **3.5**.

The survey results showed a marked variation in the number of ESs received by different regions. Various possible socio-economic and geographical indicators were examined to see if they were correlated with the level of EA activity as indicated by the number of ESs received. Potential indicators included Gross Domestic Product, area of region, and population density of the region. Since none of the parameters examined showed any obvious correlation with the survey data, the discussion is restricted to an examination of population density combined with some general comments on regional differences (see **Table 3.6**). The data on population density of DOE Regions, WC and SR were taken from the "Municipal Yearbook" (*Rusbridge 1993*). A paper had been published which was based on the results of this survey (*Leu et al. 1995*) (see **Appendix B**).

Table 3.2 The summarised results of the EA survey in the UK

Local Planning Authority	Total No. of LPAs	LPA Returns (yes) (%)	LPA Returns (no) (%)	No. of LPAs Received ESs	No. of LPAs Not Received EAs (%)	Awareness of The Recommended EA Procedure (%)	*Adoption of* The Recommended EA Procedure (%) *	Set Up Own EA Hand-book (%)	Conduct Scoping Meeting (%) *	Conduct Site Visit (%) *	Use of Consultants to Examine ESs (%) *	EA Training (%)	Use of EA in LP (%)	Use of GIS in LP (%)
EC	39	32 (82)	1 (2.6)	32	0 (0)	24 (75)	24 (75)	3 (9.4)	11 (34.4)	11 (34.4)	16 (50)	16 (50)	5 (15.6)	4 (12.5)
ED	100	53 (53)	5 (5)	34	19 (35.8)	40 (75.5)	23 (67.6)	1 (1.9)	10 (29.4)	10 (29.4)	9 (26.5)	16 (30.2)	1 (1.8)	1 (1.8)
EM	36	16 (44.4)	2 (5.6)	15	1 (6.3)	14 (87.5)	12 (80)	0 (0)	5 (33.3)	4 (26.7)	2 (13.3)	6 (37.5)	1 (6.3)	3 (18.8)
EL	33	15 (45.4)	4 (12.1)	9	6 (40)	11 (73.3)	8 (88.9)	0 (0)	1 (11.1)	3 (33.3)	2 (22.2)	2 (13.3)	1 (6.7)	2 (13.3)
WC	8	7 (87.5)	0 (0)	6	1 (14.3)	4 (57.1)	2 (33.3)	1 (14.3)	1 (16.7)	0 (0)	1 (16.7)	3 (42.9)	2 (28.3)	1 (14.3)
WD	25	16 (64)	1 (4)	11	5 (31.3)	15 (93.8)	9 (81.8)	0 (0)	6 (54.5)	3 (27.3)	3 (27.3)	6 (37.5)	1 (6.3)	0 ((0)
SR	9	8 (88.9)	1 (11.1)	6	2 (25)	——	——	1 (12.5)	1 (16.6)	1 (16.6)	3 (50)	5 (62.5)	0 (0)	1 (12.5)
SD	35	20 (57.1)	3 (8.6)	15	5 (25)	——	——	0 (0)	4 (26.6)	3 (20)	3 (20)	10 (50)	0 (0)	1 (5)
Total	285	167 (58.6)	17 (6)	128	39 (23.3)	108 (77.7)	78 (72.9)	6 (3.6)	39 (30.5)	35 (27.3)	39 (30.5)	64 (38.3)	11 (6.6)	13 (7.8)

Key:

EC: English County Council
ED: English District Council
EM: English Metropolitan Council
EL: London Borough Council
WC: Welsh County Council
WD: Welsh District Council
SR: Scottish Regional Council
SD: Scottish District Council
EA: Environmental assessment
ES: Environmental statement
LPA: local planning authorities
yes: completed returns
no: non-completed returns
LP: local planing
* : related to LPAs which have received ESs

Figure 3.2 The range of costs of hiring consultants to examine ESs

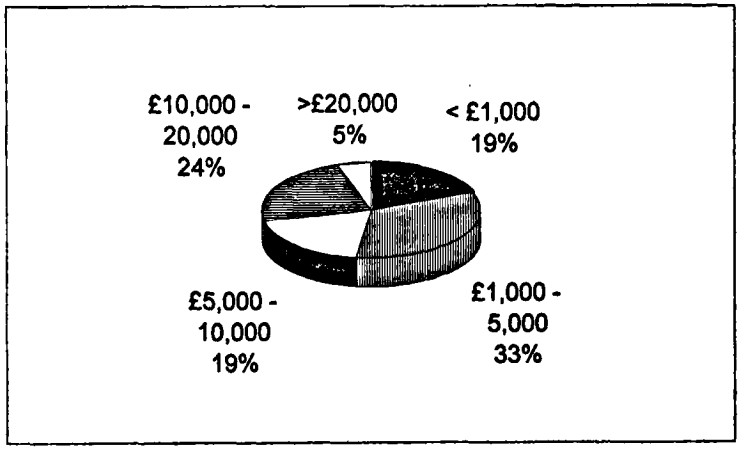


Figure 3.3 The organisers of EA training programmes

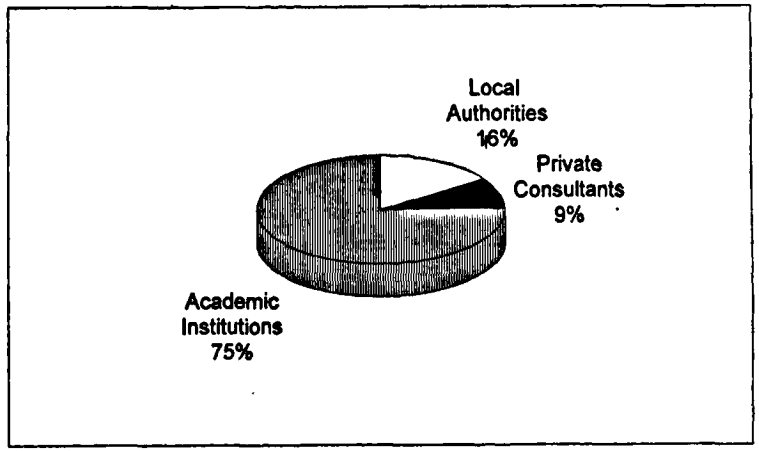


Figure 3.4 The duration of EA training programmes

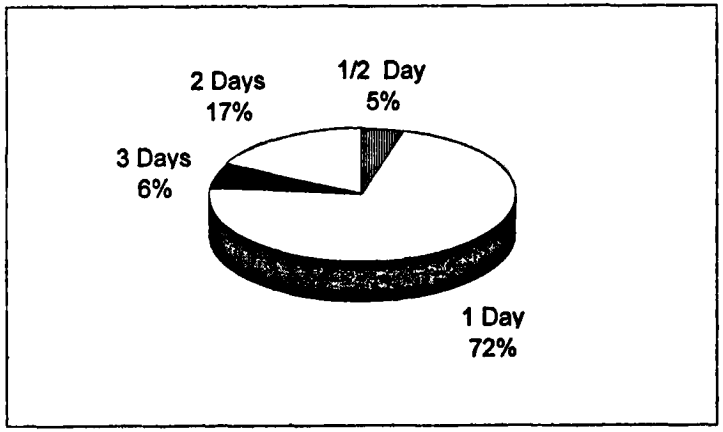


Figure 3.5 The aspects covered in EA training programmes

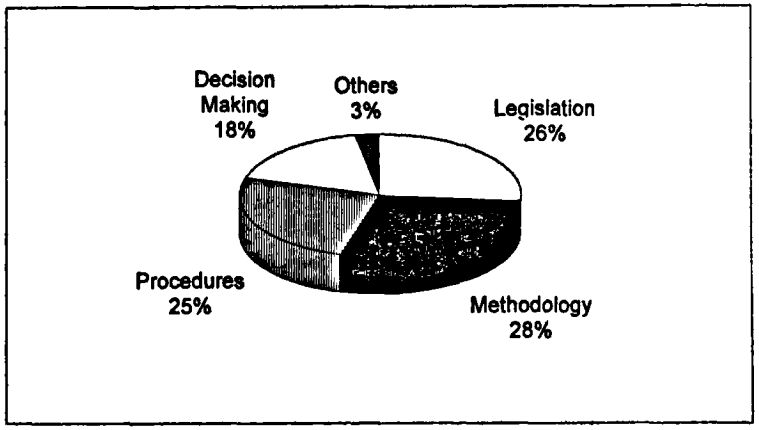


Table 3.3 The summarised results of the regional comparative analysis

DOE Region	A.I.D.	Returns (No. of LPAs)	No. of ESs (rank)	No. of LPAs received ESs	Awareness of the EA procedure % (rank)	Adoption of the EA procedure % (rank) **	Scoping meetings % (rank)**	Site visits % (rank) **	Use of consultants to examine ESs % (rank)**	EA training % (rank)	Use of EA in local planning %	Use of GIS in local planning %
South East	SE	19	72 (1)	13	73.7 (6)	76.9 (6)	23.1 (5)	38.5 (3)	84.6 (1)	57.9 (2)	10.5	5 3
Eastern	ER	16	63 (2)	12	62.5 (9)	66.7 (7)	16.7 (7)	25 (7)	16.7 (8)	18.8 (7)	0	0
North West	NW	17	51 (3)	13	76.5 (5)	84.6 (4)	23.1 (5)	23.1 (8)	38.5 (2)	47.1 (3)	11.8	23.5
East Midlands	EM	11	47 (4)	10	91 (1)	80 (5)	50 (3)	30 (5)	20 (7)	27.3 (5)	0	0
South West	SW	11	45 (5)	8	64 (8)	50 (9)	62.5 (1)	50 (1)	25 (5)	36.4(4)	18	18.2
Northern	NR	8	35 (6)	7	87.5 (3)	85.7 (2)	57.1 (2)	28.6 (6)	0 (9)	25(6)	0	0
York & Hum.	YH	11	34 (7)	11	91 (1)	54.5 (8)	9 (9)	18.2 (9)	27.3 (4)	9 (9)	0	9
West Midlands	WM	8	34 (7)	7	87.5 (3)	85.7 (2)	42.9 (4)	42.9 (2)	28.6 (3)	75 (1)	0	0
London	L	15	11 (9)	9	73.3 (7)	88.9 (1)	11.1 (8)	33.3 (4)	22.2 (6)	13.3 (8)	6.7	13.3
ENGLAND					76.7	74.4	30	31.1	32.2	34.5	6.9	8.6
Welsh County	WC											
Clwyd	1	5	14	4	80	75	0	0	25	40	20	20
Gwent	3	4	12	4	75	75	75	0	50	50	0	0
South Glamorgan	7	2	5	2	100	100	50	0	0	0	0	0
Mid Glamorgan	5	3	4	2	100	50	0	50	0	67	33	0
Powys	6	2	3	2	50	50	50	50	0	50	0	0
West Glamorgan	8	1	1	1	100	100	100	0	0	0	100	0
Gwynedd	4	3	2	2	66.7	0	50	50	50	0	0	0
Dyfed	2	3	0	0	100	0	0	0	0	67	0	0
WALES					82.6	64.7	41.2	17.6	23.5	39.1	13	4.3
Scottish Region	SR											
Strathclyde	8	12	21	9	n. a.	n. a.	22.2	22.2	11.1	50	0	8.3
Highland	6	1	15	1	n. a.	n. a.	0	0	100	100	0	0
Fife	4	3	9	3	n. a.	n. a.	33	0	33	100	0	0
Grampian	5	3	9	2	n. a.	n. a.	50	0	0	100	0	33
Central	2	3	9	2	n. a.	n. a.	0	0	50	0	0	0
Borders	1	2	7	1	n. a.	n. a.	100	0	100	0	0	0
Dumfires & Galloway	3	1	3	1	n. a.	n. a.	0	100	100	100	0	0
Lothian	7	1	2	1	n. a.	n. a.	0	0	0	0	0	0
Tayside	9	2	2	1	n. a.	n. a.	0	100	0	50	0	0
SCOTLAND					n. a.	n. a.	23.8	19	28.6	53.6	0	7.1

Key: A.I.D.: Authority identification code **: related to LPAs which have received ESs n.a.: not applicable

Table 3.4 The regional comparison of the results (combined ranking)

DOE Region	No. of ESs (ranking)	Awareness and adoption (combined ranking)	Scoping and site visits (combined ranking)
SE	1	6	5
ER	2	8	8
NW	3	5	6
EM	4	3	4
SW	5	9	1
NR	6	1	3
YH	7	7	9
WM	7	1	2
L	9	4	7

Table 3.5 The regional comparison of the results (combined ranking)

DOE Region	No. of ESs (ranking)	Hiring consultants and EA training (combined ranking)	Awareness and adoption (combined ranking)
SE	1	1	6
ER	2	7	8
NW	3	3	5
EM	4	5	3
SW	5	4	9
NR	6	9	1
YH	7	6	7
WM	7	2	1
L	9	7	4

Table 3.6 The relationship between population density of the regions and the number of the ESs received (A.I.D.: Authority Identification Code)

DOE Region	A.I.D.	Population density :P/Ha (rank)	No. of ESs received by the sample LAs (rank)
London	L	40.21 (1)	11 (9)
North West	NW	4.87 (2)	51 (3)
South East	SE	4.12(3)	72 (1)
West Midlands	WM	4.04 (4)	34 (7)
York & Hum.	YH	3.24 (5)	34 (7)
Northern	NR	2.99(6)	35 (6)
Eastern	ER	2.8 (7)	63 (2)
East Midlands	EM	2.62 (8)	47 (4)
South West	SW	2 (9)	45 (5)
Wales	**WC**		
South Glamorgan	7	7.15 (1)	5 (3)
Mid Glamorgan	5	3.99 (2)	4 (4)
West Glamorgan	8	3.36 (3)	1 (6)
Gwent	3	2.46 (4)	12 (2)
Clwyd	1	1.3 (5)	13 (1)
Gwynedd	4	0.49 (6)	1 (6)
Dyfed	2	0.47 (7)	0 (8)
Powys	6	0.18 (8)	2 (5)
Scotland	**SR**		
Lothian	7	4.35 (1)	2 (8)
Fife	4	2.65 (2)	9 (3)
Strathclyde	8	1.66 (3)	21 (1)
Central	2	1.03 (4)	9 (3)
Grampian	5	0.58 (5)	9 (3)
Tayside	9	0.53 (6)	2 (8)
Dumfires & Galloway	3	0.23 (7)	3 (7)
Borders	1	0.22 (8)	7 (6)
Highland	6	0.08 (9)	15 (2)

3.9.3 DISCUSSION OF SURVEY RESULTS

3.9.3.1 Level of Adoption and Implementation of EA

From the survey results (see **Table 3.2**), it was found that 22.3% of the responding LPAs in England and Wales were not aware of or familiar with the recommended EA procedure laid down in the DOE's guide, Environmental Assessment: A Guide to Procedures. WC appeared to have the lowest figure of awareness (57.1%). The recommended EA procedure used in Scotland is similar to that adopted in England and Wales, with some differences in details but no information was requested on this aspect from Scotland. Only 72.9% of LPAs have adopted this recommend EA procedure. A very low level of adoption was also recorded for WC (33.3%). The results indicate that there is a surprisingly high proportion of LPAs which are not aware of or familiar with the recommended EA procedure. This is probably primarily due to the fact that many LPAs (23.3% of respondents) had not received an ES and would not, therefore, have been required to carry out the procedures. Secondly, even if ESs have been received, EA is implemented through secondary regulations and is regarded as a part of the planning application process and consequently many LPAs were often not aware of the special requirements of EA. Three EC, one WC and one SR produced their own EA Guidelines of Handbook. One ED followed the EA Handbook set up by the appropriate EC, in which the ED is located.

Under the current EA system, the duty of identifying the scope and contents of an EA study lies with the applicants. The survey results indicated that only 30.5% of the LPAs receiving ESs had held scoping meetings with applicants at an early stage of the EA process. The figure was particularly low in EL (11.1%). WD had the highest figure (54.5%). This may be the result of the absence in the relevant regulations of a clear statutory requirement for either the applicants or the LPAs to arrange scoping meetings to set out the terms of reference for an EA. Moreover, only 27.3% of the LPAs receiving ESs had conducted site visits in association with statutory bodies and applicants for

projects subjected to EA at an early stage of the EA procedure. On average, Wales had the lowest figure for conducting site visits (17.6%). None of the sample WC had conducted site visits. There was no obvious difference between the tiers of LPA (i.e. County, Region and District) and their awareness or adoption of the recommended EA procedure, nor in their use of site visits and scoping meetings. **Table 3.4** shows a marked similarity in the ranking order of awareness and adoption on one hand and scoping meetings and site visits on the other. Only the South West (SW) region appeared exceptional with low levels of awareness and adoption (rank 9) and high levels of scoping and site visits (rank 1). This situation may result from the high proportion of environmentally sensitive areas within the region.

3.9.3.2 The Current Status and Quality of ESs

Before the EA Regulations came into effect in 1988, some impact studies had been undertaken in the UK on a voluntary basis for major developments. It is impossible to provide an accurate figure on the number of ESs completed. A survey (based on planning records) by the Institute of Environmental Assessment (1993) reported that the total number of ESs received by LPAs in England, Wales and Scotland, from 1988 to 1993, was 968. Examination of the data showed that the levels of awareness and adoption were not clearly linked with the number of ESs received in the regions (see **Table 3.3**). Examination of the data from Wales in **Table 3.3** is interesting. The results appear to divide the Welsh Counties into two groups; group 1 (WC1, WC3, WC7, WC5) and group 2 (WC2, WC4, WC6, WC8). In WC group 1, the 14 LA respondents had received a total 35 ESs and had high figures, 85.7 % of awareness and 75 % of adoption. These counties contain urban regions, and are more industrialised than the rest of Wales. In WC group 2, the nine LPA respondents had received only 6 ESs. Although awareness (77.8%) was similar to Group 1, the percentage adoption was relatively low (40%). Welsh Counties in group 2 are mainly rural areas. Comparing Wales as a whole with the various English regions, it was found that Yorkshire/Humberside (YH) and Wales yield similar results.

Both of them showed relatively high figures of awareness, 91 % and 82.6 %, but relatively low figures of adoption, 54.5 % and 64.7% respectively. The apparent similarity between Wales and YH has no immediately obvious explanation although both have considerable traditional industry and mining activities together with areas of outstanding landscape value and National Parks. A more detailed regional study of the relationship between the handling of EAs and the types of development under consideration may provide valuable insights.

Table 3.5 shows that a high ranking for hiring consultants and EA training is generally associated with a high ranking for the number of ESs received although the Eastern (ER) and West Midlands (WM) regions do not conform to this pattern. ER has a high ranking of ESs and low ranking for training and consultants whilst WM has a low ranking of ESs and high ranking for training and consultants. From **Table 3.6**, it can be seen that in England, the North West (NW) and South East (SE) regions have a high population density with a relatively high corresponding number of ESs. However, ER, East Midlands (EM), and SW received a relatively high number of ESs but have low population densities. There are many environmental sensitive and nature conservation areas in these three regions and it can be concluded that EAs need to be conducted if major developments are proposed in these regions even though the population densities are low. The link between the population density of the regions and the number of ESs received was no more obvious in Wales and Scotland. WC8 has a relatively high population density and received a low number of ESs whereas WC4, WC2 and WC6 have low population densities and received a low number of ESs. A possible explanation of this result is that these three regions are remote rural areas and few major developments are carried out in these regions. It can be seen that SR8 received the highest number of ESs which may be because SR8 is the major industrialised region in Scotland. It is interesting that the Highland region received a high number of statements despite its rural status. The results thus indicate considerable regional variation but this is not clearly correlated with population density, areas of environmental sensitivity or the number of major

developments planned in a particular region although some of the variation could be explained in these terms. It will be useful to examine the situation in a further five years in order to see if a clear pattern has emerged. The present position may represent a transitory phase reflecting the short period of EA implementation.

Table 3.7, **3.8** and **3.9** show the geographical and tier-based distribution of EA cases, based on the survey data of the Institute of Environmental Assessment. It was found that, within all Schedule 1 developments, Schedule 1.9 (waste disposal) had the highest figure about 72.1% and 83.6% of Schedule 1 developments were in England (see **Table 3.7**). 88.8% of the total ESs were received in England and Wales (see **Table 3.8**). It can be seen from **Table 3.9**, that County and Metropolitan Councils in England have more important roles to play than District Councils in the EA system because they received more EAs. In contrast, the situation in Wales and Scotland are different from that of England. District Councils in Wales and Scotland received more than twice number of ESs than County Councils in Wales and Regional Councils in Scotland. Up to June 1993, the Department of the Environment for Northern Ireland received 37 ESs. The figure on ESs discussed in this section does not include ESs which have been submitted to other government Departments. No national ES database has been set up by the DOE. The collection of ESs in the Headquarters of the DOE was incomplete with 225 ESs by May 1993.

The preparation and presentation of ESs is one of the principal elements of the EA system. The overall success of the EA procedure depends *inter alia*, upon the quality of ESs. Some research work has been done in reviewing the quality of ESs in the past few years. Wood and Jones (1991) examined the quality of 24 ESs in detail which concluded that a majority of these statements were judged inadequate. Lee and Colley (1991) developed a set of review criteria of which the quality of ESs was classified into 6 grades ranging from A (excellent) to F (very poor). Lee (1991) used these criteria to examine 83 ESs. The results indicated a gradual rise in the percentage graded as satisfactory (grades

A-C) from 34% in the first year of operation, to 48% in the second year and 60% by the year ending July 1991. He concluded that the quality appeared to be affected by the size of the project, with larger projects generally producing better quality ESs. A study by Glasson and Heaney (1993) indicated that fewer than half of the ESs reviewed addressed any social or economic impacts, and of those that claim to address the issues, the focus was more on economic than on social impacts and the quality was found to be poor.

The experience and familiarity of ESs by LPAs is also highly variable. Coles and Fuller (1990) found that 69% of the LPAs had not received any ES, two years after the TCPR 1988 came into force. This figure was still as high as 57% in the survey conducted by Tarling (1991). In the study report of the Institute of Environmental Assessment, it suggested that 41% of 131 LPAs had not received any ES (*Coles et al. 1992*). **Table 3.2** indicates that 23.3% of 167 LPAs had still not received an ESs by July 1993, five years after the EA Regulations came into effect. In the survey returns, 31 planning officers considered that the quality of ESs received was poor in general and the contents were biased or incomplete.

Table 3.7 EA cases in the UK (Schedule 1 development)

Schedule 1 Project	England	Wales	Scotland	Total	Percentage
(1-2) Power Station	9	0	0	9	14.8
(1-3) Radioactive waste treatment	1	0	1	2	3.3
(1-5) Extraction of asbestos	1	0	0	1	1.6
(1-6) Chemical installation	0	0	1	1	1.6
(1-7, 1-8) Transportation	3	0	1	4	6.6
(1-9) Waste disposal	37	1	6	44	72.1
Total	51	1	9	61	100
Percentage	83.6	1.6	14.8	100	

Table 3.8 EA cases in the UK

Schedule Development	England (%)	Wales (%)	Scotland (%)
Schedule 1 Development	51 (6.7)	1 (1.4)	9 (7)
Schedule 2 Development	715 (93.3)	73 (98.6)	119 (93)
Total	766	74	128

Table 3.9 EA cases in the UK (administrative level categorisation)

	County/ Metro. / Region			District			UDC			National Park			Total		
	S1	S2	T	S1	S2	T	S1	S2	T	S1	S2	T	S1	S2	T
England	34	370	404	13	317	330	4	14	18	0	14	14	51	715	766
Wales	1	22	23	0	46	46	0	0	0	0	5	5	1	73	74
Scotland	2	37	39	7	81	88	0	1	1	0	0	0	9	119	128
Total	37	429	466	20	444	464	4	15	19	0	19	19	61	907	968

NB:
UDC: Urban Development Corporation S1: Schedule 1 S2: Schedule 2 T: Total

3.9.3.3 Availability of Resources for EA Implementation

Human Resources

For projects under the planning control system, ESs of the proposed developments are handled by planning officers in LPAs (the competent authorities). The number of officers in individual LPAs are varied. In total, there are 512 LPAs in England, Wales and Scotland. After receiving ESs, the responsible officers follow the procedure specified in the relevant EA Regulations, Circulars and guide. By taking the opinions and representations from statutory consultees or the public into account, the responsible planning officer (officers) prepares the planning committee reports for the Councils which make the final decisions on the EA cases.

It is observed that the EA experience and knowledge of planning officers are highly variable since the number of ESs received per year by each LPA are very different. In addition, planning officers change from time to time. The survey results indicated that only 38.3% of the planning officers who completed the survey questionnaires had ever participated in any training course relating to EA (**Table 3.2**). Training programmes on EA may be organised by LPAs, private consultants or academic institutions. Most programmes (75%) were organised by academic institutions (**Figure 3.3**). 72% of the training courses attended by planning officers were 1 day short courses although some 1/2 day, 2 day and 3 day courses had also been attended (**Figure 3.4**). The survey revealed that various topics had been covered in the EA training programmes, including legislation, methodologies, procedures and decision making. Some respondents referred to other aspects, for example scoping, preparation of planning committee reports, review of ESs, and EA and local planning policy (**Fig. 3.5**). The higher tier authorities (EC, EM, WC and SR) engaged in more EA training programmes (47.6%) compared with the lower tier LPAs (ED, EL, WD and SD) (32.7%), as a result of more ESs received. In **Table 3.3**, the results show that more EA training activities have taken place in urban regions, such as the South East, West Midlands and North West of England. Wales and especially Scotland had apparently paid more attention to staff training, showing higher average figure (39.1% and 53.6% respectively) than that of England (34.5%). It appears that one of the major shortcomings of the current system is the failure of the Government to provide formal training programmes on EA for planning officers and other competent authorities on a regular basis.

Financial Resources and Infrastructure

There are frequent arguments about the lack of financial resources for competent authorities to implement the work of environmental management and protection, including EA. Due to lack of expertise within LPAs, external assistance, i.e. hiring consultants, might be sought in assisting the review of ESs. The survey results show that only 30.5% of the responding LPAs in the UK have ever engaged private consultants to

help them assess ESs (**Table 3.2**). Within this group, some hired consultants only to evaluate specific parts of ESs. The questionnaire did not ask LPAs to indicate the range of advice sought from consultants. It would have been useful to know how much LPA's depended on outside technical advice and whether they used consultants to advise on decision-making evaluation of the ESs as whole. EC and SR had above average figures (50%). The costs of hiring consultants to assess ESs range from less than £1,000 to over £20,000. The amount of money spent depends on the degree of the consultants' involvement in examining ESs. The most common range of costs involved is between £1,000 and £5,000 (**Figure 3.2**). Similar to the results of EA training programme, the higher tier LPAs (EC, EM, WC, SR) make more use of consultants (37.3%) than that of lower tier LPAs (ED, EL, WD, SD) (26.4%). It was concluded that the experience and work load of the higher tier of LPAs leads them to adopt a more active role in training staff and in hiring consultants. It was also found that, similar to the situation of EA training programmes, consultants have been more commonly used in urban regions, such as the South East, West Midlands and North West of England. Nevertheless, the percentage of LPAs in Wales hiring consultants to examine ESs (23.5%) was lower than those in England (32.2%) and Scotland (28.6%). From **Table 3.3**, a tendency can be seen that, although the average figure of EA training is relatively low in the UK as a whole (38.3%), it tends to be somewhat higher than the figure for hiring consultants (30.5%). This result may reflect a preference by LPAs for overcoming man-power or expertise problems by means of staff training rather than hiring consultants, probably due to the lower costs involved and the development and retention of expertise within the LPA. The main difficulty reported in implementing EA procedures was the lack of manpower to examine ESs and insufficient funds to engage consultants.

It is recognised by many that the application and utilisation of computing techniques, i.e. geographical information systems (GIS), in handling environmental matters have became increasingly important. In the survey results, it showed that 7.8% of responding the LPAs have installed GIS and use it as a supporting tool in local/regional planing. 31.1% of the

LPAs which did not have GIS in place, expressed the intention of installing it in the near future.

3.9.3.4 The Linkage of Project Level EA and Development Planning, Programming and Policy-Making (SEA)

In respect of upgrading the scope of project level EA to higher tiers, EA of policies, plans and programmes (SEA), the British Government has not introduced a formal SEA mechanism such as those adopted by the USA and the Netherlands. Instead, the Government introduced a less formal form, environmental appraisal in 1991 (*UK DOE 1991*). It is not intended to be a mandatory procedure or regulation, but rather to assist civil servants to consider the environmental repercussions of their decisions. The guide does not specify the content of environmental appraisal. It also shows a preference for quantification and especially for monetary valuation which are different from other SEA systems which focus generally on the procedural rather than the methodological side. It is for internal use only, with no external review or public participation (*Therivel 1993*). Planning Policy Guidance 12 (PPG12) on development plans, published in February 1992, is the first government document directly to recommend the use of the procedures set out in the "Policy Appraisal and the Environment". Although the PPG12 is a guideline only and does not constitute a statutory requirement, it does provide a clear recommendation that environmental appraisal should be adopted in the preparation of structure and local plans. In 1993, the DOE also published a guide, Environmental Appraisal of Development Plans: a good practice guide (*UK DOE 1993*), which aims to enable planning authorities to undertake environmental appraisal, and to do so in a way which enhances the preparation of good development plans.

The survey results showed that only 6.6% of the responding LPAs had incorporated EA studies while preparing local regional plans (**Table 3.2**). Higher figures were recorded for EC (15.6%) and WC (28.3%). This development of SEA has been done on a voluntary

basis because the Government advice does not require a full ES of a local/regional plan. 19.2% of the LPAs expressed the intention of using SEA into strategic regional planning in the near future.

A proposal for an EC Directive on SEA prepared by the Directorate General XI of the European Commission, was released in November 1992 (*Commission of the European Communities 1992*). However, the proposed SEA Directive has not yet been accepted by the Commission and is reportedly opposed by a number of larger Member States, including the UK which considers the proposed Directive is "unnecessary, inappropriate or unworkable at the policy level" (*Baldry 1992*).

3.10 CASE STUDY: WYTCH FARM OILFIELD DEVELOPMENT, BRITISH PETROLEUM COMPANY P.L.C. (BP)

3.10.1 BACKGROUND

The Wytch Farm Oilfield Development began prior to the EA regulations in the UK and has been used to illustrate how the UK system developed initially from public pressure and industrial responses to this pressure, rather than through legislation. BP is a multi-national group of companies, operating in more than 70 countries world-wide and employing about 120,000 people. BP has set up its own Health, Safety and Environmental Policy since 1982 (*BP 1990*). Wytch Farm Oilfield Development is carried out by a BP subsidiary, the BP Exploration Company. It is the largest onshore oilfield in Western Europe and its reserves make it the sixth largest in the UK. It lies under Poole Harbour in Dorset and its Sherwood reservoir extends eastwards under Poole Bay (*BP Exploration 1992a*). The areas which contain Wytch Farm Oilfield are considered by many to be some of the most attractive areas in Britain. This is recognised by its designation as an 'Area of Outstanding Natural Beauty' (*Syratt 1984, Martin et al. 1984, Martin et al. 1986*). There are also some 'Sites of Special Scientific Interest' (SSSIs) in these areas. English Nature

has identified the Dorset heath land areas as a 'Potential Special Protection Area' under the EC Directive in the Conservation of Wild Birds 1979, circular 27/87. The whole area of Poole Harbour's intertidal region is recognised as a wetland of international importance under the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar, February 1971).

The developments at Wytch Farm Oilfield are thus located in a very environmentally sensitive area. Two major reservoirs, the Bridport and the Sherwood, were discovered in 1974 and 1978 respectively. There were various developments involved in this project undertaken between 1973 and 1991. The location of the Wytch Farm Oilfield Development is shown in **Figure 3.6** (*Webb, 1986*).

3.10.2 EA PROCEDURE FOR WYTCH FARM OILFIELD DEVELOPMENT

The EA procedure and methodologies adopted by BP have evolved in the light of experience with major oil and gas developments in both the UK and overseas. After preliminary consultation with the Dorset Planning Department, the EA studies were conducted by BP environmental specialists in conjunction with project engineers and hired private consultants. Before detailed designs took place, a study was conducted on the baseline environmental status of the development's proposed locations. The studies of impact predication, evaluation and mitigation were done for each development in both the construction and operation phases. Environmental Management Plans were also prepared which included; general management, environmental review and environmental monitoring programmes. An Oil Spill Contingency Plan based on risk assessment was formulated which contained shore line access manuals, environmental sensitivity mapping of Poole Harbour and clean-up strategies (*BP Exploration 1992b*).

The EA of Wytch Farm Oilfield Development had one other essential purpose: it provided the basis for the Land Management Proposals. These laid down a programme of

environmental care which will remain in force throughout the life of the development. Various agencies were consulted in this EIA process, including Dorset County Council, Purbeck District Council, Poole Harbour Commission, Her Majesty's Industrial Air Pollution Inspectorate, Wessex Water Authority, Crown Estates Commissioners and Southern Sea Fisheries District Committee (*Martin et al. 1986*). During the pre-project phase, slide shows and presentations were held for interested parties in the locality. There was one public inquiry conducted for the Purbeck-Southampton Pipeline. Several ESs have been prepared and submitted to the Dorset Planning Department for planning permissions since 1973, including Furzey Island, the main Wytch Farm Developments and the Purbeck-Southampton Pipeline. A Wytch Farm Environmental Advisory Group had been organised, including representatives of local authorities, the Natural Conservancy Council (now English Nature), Wessex Water Authority, Poole Harbour Commission and the Countryside Commission, which is responsible for reviewing the monitoring programmes on a regular basis.

3.10.3 DISCUSSION OF CASE STUDY

The project has been started and developed continuously since 1973, before EA Regulations came into effect in 1988. BP conducted a series of impact studies on a voluntary basis before the formal EA system was in place. Partially, this was because the project was located in an area which has been recognised nationally and internationally as environmentally important. There were thus pressures from local people and interested groups. Partially, it was because BP, itself, has high standards of professional ethics to maintain high environmental standards in its operations. As a result of the combination of the EA study and new engineering techniques development, changes have been made to the original plans. For example, the design of the sub-development of the project, Wellsite F, was changed from a 1990 proposal to establish an artificial island in Poole Bay, to the use of a more advanced drilling technique (extended reach drilling) from an onshore site (*Stevenson 1992*).

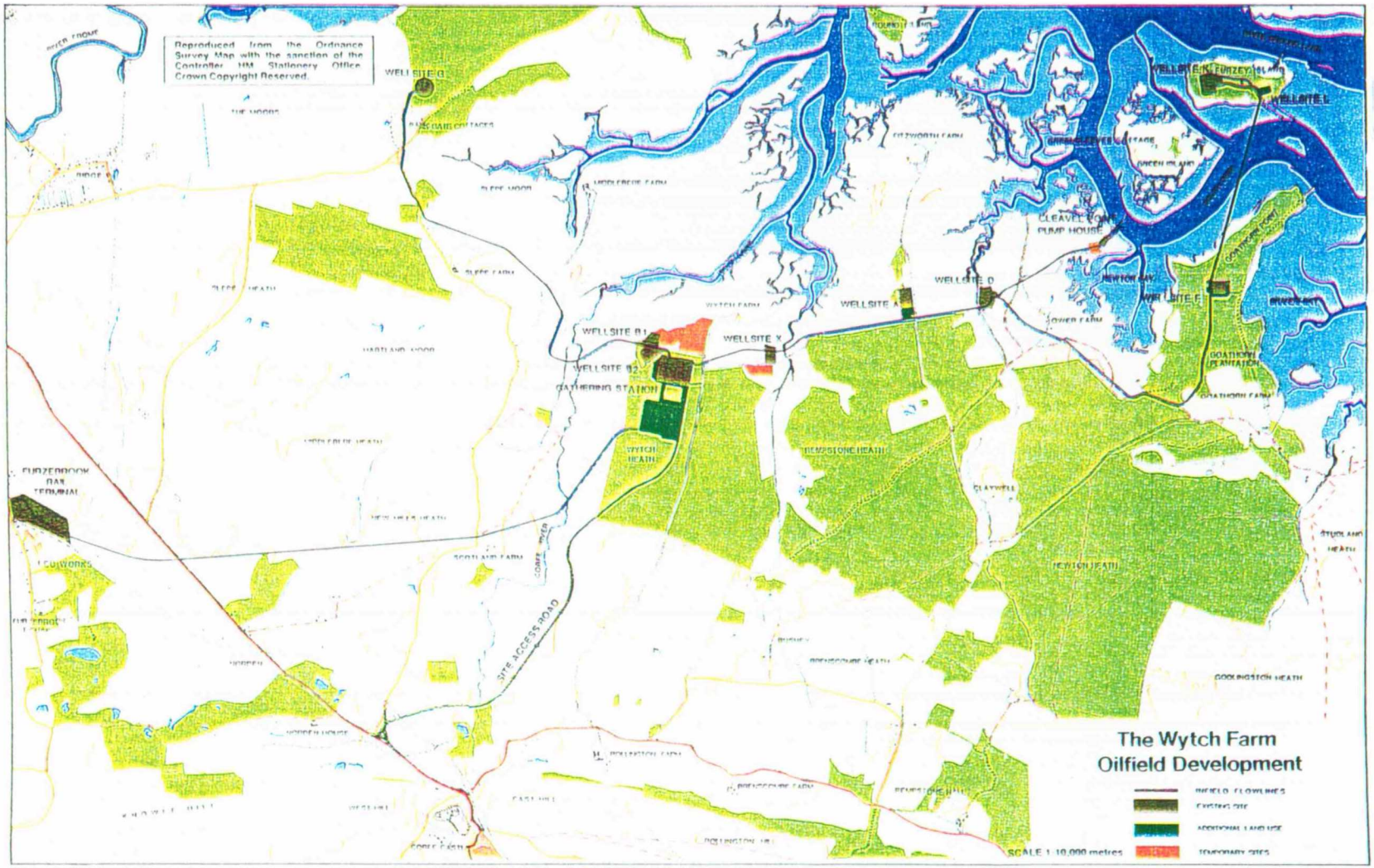


Figure 3.6 BP Wytch Farm Oilfield Development

Nevertheless, some shortcomings can be identified. The project was in fact a sequence of smaller projects taking place over a period of time, and producing a gradual impact on the surrounding environment. No assessment on the cumulative impact has ever been conducted. The series of ESs prepared were not presented in a consistent way. The contents and formats varied considerably. Although a Wytch Farm Environmental Advisory Group was organised, there was no involvement of local communities in this group.

3.11 EFFECTIVENESS OF THE EA SYSTEM

3.11.1 ACHIEVEMENTS AND SHORTCOMINGS OF THE CURRENT SYSTEM

Environmental Policies, Regulations and Guidelines

The UK has a long tradition of incorporating environmental concerns into the planning and pollution control system (2.1 - 1)[d] . Since the industrial revolution originally initiated in the UK in the early 19th century, many lessons have been learned from dealing with pollution problems as a result of rapid industrialisation and urbanisation. The Government have introduced a series of environmental policies, regulations and guidelines to improve and maintain environmental quality. The legal basis of EA implementation was established through secondary regulations, after the enactment of the TCPR 1988 for England/Wales and the Environmental Assessment (Scotland) Regulations 1988 for Scotland (2.1 - 3). Guidance on EIA review for LPAs is provided in the DOE's guide (*UK DOE 1994b*). The introduction of this guide is a useful step forward in overcoming some of the shortcomings in the existing EIA system (2.1 - 7). The requirement for EA was integrated into the existing planning system in 1988, within which the legal basis and guidelines for appeals were already established (2.1 - 8).

[d] As in Chapter 1 and 2, these notations refer to the components and elements listed in Table 1.2 and 2.1. As before, the components and elements are referred to by table and item number (s), e.g. 2.1 - 1.

However, the introduction of EA in the UK has not been a smooth one from its outset, due to the debates over whether the existing planning system would have already included the environmental considerations in EA. The interpretation and implementation of the EIA Directive by the UK has been narrowed down in such way without making any major changes to the existing system. There is no single regulation which introduces EA across the whole range of projects. The EIA Directive is implemented through a series of regulations in which various governmental departments or agencies are involved. Any adjustment to the system would be complicated and require implementing changes across the whole range of departments. In addition, the EA Regulations dealing with various types of development are not consistent. Some competent authorities have their own schedules of development proposals subject to EA, whilst some refer directly to the EIA Directive. Additionally, some regulations require the applicant to conduct an EA, whereas some allow the developing authority to carry out and then judge the assessment as in the case of road schemes which allows the Minister in charge considerable powers (1.2 - 1).

The scope of EA screening list in Annex 1 and 2 of the EIA Directive is not fully complied with by British Government, e.g. agricultural development (2.1 - 4). No EA Technical Guidelines are available to give advice on particular types of project proposal and LPAs receive no guidance on the technical issues associated with particular developments (2.1 - 5), although there are some publications relating to the EA procedures to be followed, e.g. Environmental Assessment : a guide to procedures. Currently, there is no explicit requirement to assess impacts of 'no action' alternative. The decision as to whether or not to discuss alternatives has been left virtually to the discretion of the applicant. Wood and Jones (1991) found that only one quarter of ES considered alternatives. No formal format of presenting an EA is clearly stipulated in the relevant EA Regulations and guidelines (2.1 - 6). Glasson and Heaney (1993) also argued that socio-economic impact studies were often left out from ESs and not presented in an uniform way. Wood *et al.* (1991) concluded that significant numbers of ESs may not meet the minimum information requirements contained in the EA Regulations and guide.

In the survey returns, 18.5% of the planning officers completing the survey questionnaires considered that the quality of ESs received was poor in general and the contents were biased or incomplete (1.2 - 5). The requirement of conducting post-EA monitoring is noticeable by its absence in the EA Regulations (2.1 - 9). The linkage of project level EA with national/regional planning, programming and policy-making has only been made through a less formal form, environmental appraisal. In addition, it is a recommended procedure rather than a statutory requirement (1.2 - 9; 2.1 - 2).

Environmental Administrative Framework

The responsibility of EA implementation is highly decentralised, which is shared by more than 500 competent authorities, including LPAs and various Departments, Ministries and Commissions (1.2 - 2; 2.1 - 12). These is no single environmental agency responsible for dealing with EA in the current system. The implementation, administration and management of EA cases may not be consistent, because individual EA cases are handled by various competent authorities which might not have the same interpretation of EA requirements (2.1 - 10, 11). In addition, some competent authorities operate with great autonomy in EA, for example the Department of Transport, may be the applicant and the EA review and decision-making bodies. They, thus, propose projects, prepare the ESs and decide whether the projects should proceed or not; this is hardly conducive to unbiased decision-making (2.1 - 14). The power and duties of environmental management and protection are allocated to a wide range of government agencies. The allocation of these tasks is not perfectly clear because of some overlapping powers in the system. Coordination among these bodies may be complicated and time-consuming (2.1 - 13). The survey results showed that 23.3% of 167 LPAs had never received any ES by July 1993. A range of skills are required to assess the adequacy and quality of ESs, which may not exist in many of the competent authorities (2.1 - 15). There is a widely spread phenomenon that many applicants, consultants and LPAs are not familiar with the EA requirements.

EA Procedure

The current EA procedure has included paths for the public and interested groups to access project information, copies of ESs and the EA review results (2.1 - 23). The legal basis and channels for appeals have been in existence long before EA was integrated into the planning control system (2.1 - 24). The time limit for each key step of the EA procedure is explicitly defined in the EA regulations (2.1 - 25). However, Tarling (1991) found that the average time period for decision-making was 37 weeks. It is apparent that the time limit of 16 weeks for determining planning applications accompanied with ESs is, in practice, not enough. The possible reasons resulting in this delay are the dissatisfaction of the LPA over the original scope of the EA study or the submission of inadequate ESs.

It was found from the survey that 22.3% of the responding LPAs in England and Wales were not aware of the recommended EA procedure. Only 72.9% of LPAs have adopted this recommended EA procedure. The screening process for the internal decision-making of LPAs in deciding whether or not an EA is required, is not clearly stipulated in the relevant EA Regulations and Circulars. Consultation between the applicant and the responsible competent authority is not a mandatory requirement (2.1 - 16). The task of identifying the scope and contents of an EA study lies with the applicant. Although the DOE's guide suggests that the applicant may consult with the LPA and relevant bodies in environmental effects of the proposed project, there is no requirement for undertaking a formal scoping exercise to set out the terms of reference for the EA study (2.1 - 17). The survey showed that only 30.5% of the responding LPAs receiving ESs had held scoping meetings with the applicants, and 27.3% of the LPAs had conducted site visits in association with the statutory bodies and applicants at an early stage of the EA procedure. Without agreements established at the independent scoping meetings, private consultants may have difficulty in resisting pressure from the applicants to produce favourable ESs, rather than an unbiased report on the positive and negative environmental impacts. Public participation does not enter the EA procedure until the ES is made public, after a formal

planning application is made for a proposed project and its ES is submitted to the competent authority, not throughout the project planning process (2.1 - 18, 19). There is no statutory requirement to hold a public presentation by the applicant after an EA is deemed to be required. Nor is a formal mechanism for public consultation at the stage of ES preparation in place (2.1 - 20). It is apparent that the channels for public participation in the early stage of EA are limited. In addition, there is no formal requirement for the applicant to take into account the opinions raised by the public, interested groups or relevant agencies, to inform them and publicise his responses, or to revise the ES and produce a final ES. Under the planning system, ESs are reviewed by planning officers who consult with statutory consultees. They then produce the planning committee reports for the local councils which make the final decisions (2.1 -22). This process may be time consuming and inconsistent. In some cases, the LPAs even failed to inform or consult with the statutory consultees or the consultations were not undertaken in a timely manner (*Wood and Jones 1991*). Due to lack of expertise and experience, it is difficult to carry out an objective and appropriate judgement of ESs (2.1 - 21). Clark (1991) argued that the "adding on" of EA to existing authorisation procedures wasted an excellent opportunity to consider a radical improvement of the whole structure of the decision-making process for the planning, authorisation, development and monitoring of projects (1.2 - 3).

Role of Actors Involved

The duties, rights and obligations of various participants involved in the EA system have been clearly stipulated in the EA Regulations and Circulars, although it is not fully appropriate (1.2 - 4; 2.1 - 26). Under the planning system, a superordinate body, the SOS is given the authority to act as a referee to resolve EA appeals and dispute settlement (2.1 - 28). However, there is apparently no procedure for appeals against the Minister's decisions; whether the High Court will be able to consider appeals is not clear (2.1 -29). The High Court would only be able to consider EA appeals where there were grounds for a legal/procedural challenge to the decision. Under the current system, no independent EA review panels or deliberation committees have been set up to review ESs. This

shortcoming may lead to delays in the project proceeding and cause arguments at the later stage of the EA process (2.1 - 27).

EA Compliance Monitoring and Enforcement

There is no formal requirement for post-EA monitoring stipulated in the EA regulations. Nevertheless, there may be formal compliance and monitoring through planning conditions or consents; this work is conducted by competent authorities (1.2 - 6; 2.1 - 30, 32, 33). Thus, although some forms of monitoring on project implementation are carried out, these are unrelated to the EA system (2.1 - 31). There are no clear provisions which define the penalties and sanctions against non-compliance of the EA decisions in EA regulations although planning conditions are legally enforceable according to the planning regulations (2.1 - 34).

EA Implementation in Practice

The level of environmental awareness among the public is very high because the environmental protection and management system has been in existence for a long time in the UK, an advanced democracy nation (2.1 - 37). Public and interested groups are very active in participating in the activities of environmental protection and nature conservation. They exert their influence on the Government's approach in dealing with environmental affairs, including EA, through environmental campaigns or public inquiries etc. (2.1 - 40, 42).

However, the attitude, understanding and interpretation of various participants, especially the LPAs, towards EA tends to vary considerably (2.1 - 38). The survey has demonstrated an inconsistent approach to the implementation of EA in the country as a whole with LPAs adopting a wide variety of policies and actions (1.2 -7). This inconsistency of implementation gives a wide regional and LPA tier variation. This is perhaps the most serious shortcoming of the UK system since EA procedures will not be implemented equitably for projects independent of the region or tier of local authority to which they are

submitted. It is suggested that this shortcoming may have arisen because EA has been integrated into the existing decision-making process, rather than through primary legislation. The incorporation of EA in planning, programming and policy-making (SEA) has not yet prevailed across the country owing to lack of formal requirements. Only 6.6% of the LPAs has incorporated EA studies while preparing local/regional plans on a voluntary basis (2.1 - 43).

Resource Availability

The lack of man-power and expertise in dealing with EA cases is a serious constraint encountered by the LPAs (1.2 - 8; 2.1 - 44). No formal and regular EA training programmes have been organised by the Government to improve and/or build up EA capability of the responsible officers (2.1 - 45). EA training programmes are usually organised by academic institutions and professional bodies. The survey results showed that only 38% of the planning officers had ever participated in any training programmes relating to EA. The competent authorities may seek external assistance, but it would depend upon the financial condition of the authorities. Only 30.5% of the responding LPAs have ever engaged private consultants to help them assessing ESs (2.1 - 47). In addition, the credibility and independence of a review conducted by a competitor consultant are open to question. The collection of ESs in the headquarters of the DOE is far from complete, mainly due to the failure of LPAs to send the required ESs to the DOE, Scottish Office Environmental Department and WO. There is no requirement for competent authorities (other then LPAs) to send copies of the ESs to the DOE for monitoring purposes. No national ES database, or an EA tracking system, which monitor, record and report the status of EA implementation by competent authorities (both LPAs and other responsible government Departments), have been set up by the Government (2.1 - 50). It also makes public inspection and EA research more difficult. There is no integrated central environmental database set up by the Government. Currently, environmental data are widely spread among various agencies and organisations. The accessibility and collection of environmental data are time-consuming and complicated

tasks for applicants, which might lead to inadequate EAs (2.1 - 48). The utilisation of GIS by LPAs in supporting local/regional planning is fairly low (7.8% of the LPAs responding), but it is acknowledged that this will be increased in the near future (2.1 - 49).

International Interactions

The international factor, regional agreements of the European Union, has exerted a tremendous influence on the British EA practice (1.2 - 10). In fact, it is the primary driving force for the UK to establish the EA system, although the whole process was not smooth at its beginning (2.1 - 56). Nevertheless, the shortcomings identified in the existing EIA Directive, e.g. lack of requirements for post-EA monitoring and SEA, have also affected the effectiveness and performance of the UK EA system.

3.11.2 RECOMMENDATIONS FOR IMPROVEMENT OF THE EA SYSTEM

Environmental Policies, Regulations and Guidelines

It is suggested that the Government should introduce a primary EA legislation which covers the whole range of projects subjected to EA. In this way, the inconsistencies among various existing EA Regulations can be avoided, and the status, functions and effectiveness of EA can be strengthened within the legal framework. The DOE-WO/SDD Circulars need to be revised to provide more specific and clear guidance on the definition of 'significant environmental effect' for Schedule 2 projects, and the indicative criteria and thresholds. There should be a clear requirement to include in the ES a description of the EA methodologies used and a requirement to conduct an assessment of socio-economic impacts and alternatives (including no action) as part of the EA. A prescribed format for an ES presentation should be defined. The EA Regulations should be revised to require the applicant to conduct post-project monitoring and the competent authority to conduct EA compliance monitoring and enforcement. EIA technical guidelines should be provided

by the DOE for the various major types of development which are subject to EA. These should cover all Schedule 1 projects, i.e. those where EA is mandatory. Such guidelines would alert the LPAs to the major environmental issues which are likely to arise from specific developments and thus improve the scoping phase of EA. Guidance should also be included for the LPA and applicant on how to initiate EA studies to obtain critical technical information and how to prepare and present the EAs. Guidance for the key aspects of the EA procedure (e.g. screening, scoping) should be introduced. The project level EA should be upgraded to a higher level, SEA. Statutory requirements of conducting EA for national/regional planning, programming and policy-making should be clearly stipulated in the relevant policies and regulations. The LPAs should conduct EA studies in the process of formulating legal/regional strategic plans and policies.

Environmental Administrative Framework

It is suggested that the DOE should be the core agency responsible for the development and management of the EA system. The DOE should assume the powers relating EA implementation currently allocated to various Developments, Ministries and Commissions. For projects subjected to EA outside the planning system, the DOE should act as the EA review body which reviews the ESs and provides comments and recommendations to the decision-making bodies, e.g. Department of Transport, MAFF, Department of Energy and the Parliament. A single agency approach can provide a single source of advice and standards that can be consistently applied to all projects. Coordination and communication among the government agencies involved in the EA system should be enhanced.

EA Procedure

A formal screening exercise is required before the application is entered on the planning register, through which consultations should be undertaken between the LPA and applicant in deciding the necessity of an EA study. An independent EA review panel should be organised by the LPA. Once the requirement for an EA is confirmed, a visit to

the proposed project site should be conducted by the LPA in association with the various participants, in order to gain and provide useful inputs to the EA scoping exercise. A formal scoping meeting should be held by the EA review panel by inviting representatives from the relevant agencies, local communities, statutory consultees and the applicants, in order to determine the terms of reference and feasible alternatives. For the applicant, the terms of reference provide a basis for consultation with statutory consultees and for competitive tendering amongst a range of environmental consultants. The problem of delayed decision-making may be overcome since many arguments are likely to have been resolved at the scoping meeting. Before starting to prepare the draft ES, the applicant should be required to hold a public presentation near the project site, in order to take into account local concerns and knowledge. After the planning application and its draft ES are submitted, the applicant needs to send copies of the draft ES to the statutory consultees for consultation. At the same time, the draft ES should be made available for public inspection. A public hearing should be held by the LPA at the end of public inspection. The EA review panel should then examine the draft ES by considering opinions from various sources. The draft ES accompanied with comments should then be returned to the applicant for revision. The applicant should produce the final ES and publish his responses in dealing with the representations and comments from various sources, in the local press. The ES would then be examined and confirmed by the EA review panel. The EA review panel should then prepare the planning committee report for the local council which makes the final decision. The LPA would then put the results on the public records and send copies of ES to the appropriate DOE Regional Office and the SOS. For projects outside the planning control system, the DOE should organise an EA review panel which reviews the ESs and forwards their comments to the authorisation body for decisions. If the applicant does not accept the decisions, he can appeal to the SOS for the Environment, for projects under the planning system. For project outside such control, the involvement of a superordinate body, e.g. the cabinet, or a judicial agency, e.g. the High Court, is suggested in order to resolve EA appeals and disputes.

Role of Actors Involved

It is apparent that lack of man-power and expertise in the competent authorities to handle EA cases is a major shortcoming of the current system. The introduction of independent EA review panels can overcome this constraint. The EA review panel should be responsible for scoping meetings, review ESs and preparing the planning committee reports. An information database of subject experts should to be set up by the Government, by which competent authorities can have access to a large expert panel employed on a contract basis for the provision of specialist advice. The sources of these subject experts could come from academia, research institutes etc.. After considering important factors, such as the recommendations provided by the information database, the features of development and project location etc., the competent authority could organise an independent EA review panel. This panel need not to be a regular body, but should be formed for each individual case. Basically the membership of the EA review panel should consist of representatives from the competent authority, relevant agencies, local community and subject experts. Those projects under project system can be classified into the following two situations. For projects referred as 'county matters', the County Planning Department would be responsible for organising the panel which should, in principle, consist of the following people.

i) representative from the planning department,

ii) representative of the councillors from the County Planning Committee. The councillor has to present the "*planning committee report*" to the County Planning Committee through which the final decision will be made,

iii) representative from the appropriate DOE Regional Office which can provide assistance and comments to the EA from a regional point of view,

iv) subject experts: the main body of the EA review panel,

v) representative from the appropriate District Planning Authority, where the proposed project will be located,

vi) representative from local communities.

For projects referred as 'District matters', the necessity of inviting the representative from the appropriate DOE Regional Office would depend on the features and types of development. But, the basic rule for organising the EA review panels by the District Planning Authorities, Metropolitan Planning Authorities and London Borough Authorities would be similar to that adopted by the County Planning Authorities. A superordinate body and judicial agency should be involved in resolving EA appeals and dispute settlements regarding the decisions given and the legal process of EA respectively.

EA Compliance Monitoring and Enforcement

A programme of EA compliance monitoring and enforcement should be established to be carried out by competent authorities and relevant agencies. The applicants should conduct post-project monitoring and submit the monitoring results to the responsible agencies on a regular basis, for monitoring purposes. Channels should be available for the local communities and interested groups to be involved in this programme.

EA Implementation in Practice

The implementation of EA by various competent authorities was found to be patchy and inconsistent. More supervision and advice from the DOE and its Regional Offices would improve the situation. Periodic auditing of the EA system should be carried out by the DOE to improve the effectiveness of EA administration and implementation in the light of experience. Representative samples of ESs should be reviewed officially by the DOE at regular intervals, as part of the monitoring process of implementing the EIA Directive and the corresponding UK EA Regulations.

Resource Availability

One way of overcoming the constraints of man-power and expertise in the competent authorities is through personnel training. EA training programmes should be organised and/or promoted by the Government to strengthen and build up EA capabilities of

responsible officers. These programmes should also be opened to other participants, e.g. applicants and consultants. A national ES database and EA tracking system should be established by the DOE, to monitor, record and report the status of EA cases. A central environmental database should also be set up in order to support the work of environmental protection and management, including EA implementation. The application and utilisation of GIS by LPAs should be encouraged, promoted and supported by the Government, in terms of expertise and financial resources.

International Interactions

There are opportunities for the UK to take a leading role in improving the EA effectiveness in the European Union. It is suggested that the UK should exert its influence on the introduction of EA compliance monitoring and enforcement during the amendment of the EIA Directive.

CHAPTER 4.

ENVIRONMENTAL IMPACT ASSESSMENT IN TAIWAN

4.1 INTRODUCTION

Over the past four decades, Taiwan has achieved a remarkable economic success. For this achievement, Taiwan has paid a high price in the deterioration of environmental quality. The environmental pollution problems mainly result from population expansion (currently 20.1 million), rapid urbanisation and industrialisation, incompatible use of land and natural resources, increasing number of vehicles and acceleration in energy consumption. Due to the pollution problems and deterioration of environmental quality, Taiwan has begun to realise the importance of environmental protection.

Since the 1970s, several serious pollution incidents have occurred in Taiwan. Many non-governmental organisations (NGOs) have been formed which have played leading roles in many anti-pollution campaigns and urged the Government to resolve these problems. Because of this pressure, the Government has reconsidered the priority of environmental protection in the national policy and its approach has also changed gradually from pollution control to pollution prevention. In a public survey conducted by the Min-Der Foundation (1986), over 60% of the public favoured protection and conservation of the natural environment rather than unlimited pursuit of growth. The average annual economic growth in Taiwan was 6.7% from 1988 to 1992 (*Council for Economic Planning and Development 1993*). In the study carried out by the Research, Development and Evaluation Commission (1993) at the same time, environmental pollution problems were considered as the second most serious problem envisaged by the public. According

to a survey conducted by the Environmental Protection Administration (EPA) in 1993, 88.4% of respondents considered that the problems of environmental pollution were serious or very serious (*EPA 1993a*).

Prior to the field work in Taiwan, contacts had been developed with the EPA. A number of EIA related documents and guidelines were obtained which enabled the preparatory work to be carried out in the UK. The field work was mainly undertaken in September 1992 and January 1994 respectively. Several governmental authorities were visited, including the EPA, the Ministry of the Interior, the Council of Agriculture and the Ministry of Economic Affairs (MEA). In addition, interviews were conducted with the personnel of the Academic Sincia, the Graduate Institute of Environmental Engineering of the National Taiwan University, NGOs and consultants. The views described and discussed in this chapter are results of document review and the interviews during the field work. These opinions may not represent the views of the government.

4.2 EVOLUTION OF THE EIA SYSTEM

The concept of EIA was first discussed in the Conference of Modern Engineering Techniques of the Chinese Engineer Society in July 1976. In April 1980, the Executive Yuan (equivalent to the US State Department) decided that in the future the Taiwan Power Company should submit an EIS for proposed nuclear power plants to the Atomic Energy Council for review and subsequent confirmation by the Council for Economic Planning and Development (CEPD). This was followed by the introduction of Executive Order 1692 of 1980 which stipulated that the Department of Health (DOH) was responsible for preparing relevant regulations, guidelines and review procedures for an EIA system. In 1981, the DOH conducted a pilot EIA study for Da-Un industrial park and the Taiwan Provincial Government organised a research group to study the establishment of the EIA system respectively. A provision relating to EIA was included in the

Regulations Governing Special Scenic Areas (Amendment) of 1982. The requirement of EIA was incorporated into the Enforcement Rules of the National Parks Law in 1983. Also, a draft of the "EIA Law" proposed by the DOH was forwarded to the Executive Yuan for approval in the same year.

The EIA law proposed by the DOH was not passed immediately. Instead between 1985 - 94 the EIA implementation was strengthened by a number of major plans which were approved by the Executive Yuan, including the designation of the EPA as the responsible authority for EIA. The EIA Law was reintroduced to the Executive Yuan in 1991 where it was approved but it was not until the end of 1994 that the EIA Law finally was passed and came into force.

4.3 GOVERNMENTAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT AND PROTECTION

4.3.1 CENTRAL GOVERNMENT

4.3.1.1 Environmental Protection Administration

In 1971, the Central Government set up the Department of Health (DOH) directly under the jurisdiction of the Executive Yuan. The Division of Environmental Sanitation of the DOH was responsible for providing guidance and monitoring on garbage and sewage disposal, as well as research, guidance and monitoring on public nuisance, air and water pollution. In addition, the Committee of Water Resource Planning under the MEA, had the duty of water pollution control. In 1982, the DOH established the Division of Toxic Substances Control. Meanwhile, the Division of Environmental Sanitation was upgraded to the Environmental Protection Bureau (EPB) (*Institute for National Policy Research 1993*). In 1987, in order to reinforce the task of environmental protection, the Executive Yuan upgraded the former EPB under the DOH to form the Environmental Protection

Administration (EPA). The EPA is in charge of maintaining environmental safety standards, air and water pollution control, noise control, soil contamination control and hazardous waste management, environmental monitoring and data processing, performance evaluation and dispute settlement, directly under the jurisdiction of the Executive Yuan (*EPA 1992a; Government Information Office 1993*). Although the functions of the EPA are being strengthened gradually, its status within the Central Government is lower than the other Ministries or Councils. The subsidiaries of the EPA are briefly described as follows (*EPA 1993b*):

i. Committee of Environmental Quality Advisors: The members of the Committee consist of deputy directors of relevant authorities and subject experts. The Committee meets every three months. The function of the Committee is to provide recommendations or comments relating to environmental policy for the EPA.

ii. The Bureaux of the EPA: The EPA has eight Bureaux responsible for various tasks, including: comprehensive planning, air quality protection and noise control, water quality protection, solid waste control, environmental sanitation and toxic chemicals control, performance evaluation and dispute settlement, environmental monitoring and data processing, incinerator engineering. Among these, the Bureau of Comprehensive Planning has the duty of developing and implementing the EIA system.

iii. National Institute of Environmental Analysis: This Institute, which came into existence in January 1990, analyses air, water and soil quality; vehicle noise pollution, toxic and solid waste; and conducts bioassays.

iv. National Institute of Environmental Training: In July 1991, the EPA set up this Institute to train environmental protection personnel.

v. The Committees of the EPA: There are three Committees, including the Public Nuisance Dispute Advisory Committee, the Petition Deliberation Committee, as well as the Law and Regulation Committee.

4.3.1.2 Environmental Protection Committee of the Executive Yuan

In 1986, the Executive Yuan organised an inter-departmental Environmental Protection Committee. The Committee consisted of the Deputy Ministers/Administrators of various Ministries/Administrations/Councils and chaired by the Deputy Prime Minister. The Committee's tasks include planning the overall environmental protection policy, coordinating and overseeing environmental protection programmes, as well as synchronising the work of social and economic departments concerning environmental protection. However, the Committee was abolished in 1993, since the Government considered that it had fulfilled its objectives.

4.3.1.3 Other Parts of the Central Government

Currently, the EPA is only responsible for pollution control, waste disposal and public nuisance control. Other tasks, such as wildlife protection, natural conservation and cultural heritage preservation etc., are the responsibility of other Ministries/Councils but in close consultation with the EPA. The Council of Agriculture is responsible for natural and wildlife conservation, and protection of natural beauty/scenic areas. The task of cultural heritage preservation is carried out by the Council of Cultural Planning and Development. Construction of sewage systems and management of National Parks are under the jurisdiction of the Ministry of the Interior. In addition, the Atomic Energy Council is responsible for the development and management of nuclear energy.

4.3.2 LOCAL GOVERNMENT

In 1967, Taiwan Provincial Government (TPG) assigned the work of air and water pollution control to the Taiwan Institute of Environmental Sanitation and the Taiwan Water Pollution Control Agency respectively. In 1983, the Environmental Protection Bureau (EPB) of Taiwan Provincial Government was set up by combining the functions of these two authorities. In the same year, EPBs were also established by Taipei and

Kaohsiung Municipal Governments (*Lin & Gilpin 1990*). Since July 1993, the EPB of the Taiwan Provincial Government has also set up three Regional Centres, namely North, Middle and South. At the County level, 14 EPBs have assumed responsibility for environmental protection. For those Counties without an EPB, the second Section of the Health Bureau in the County Government routinely handles all matters relating to environmental protection.

4.4 LAW, PLANS, REGULATIONS AND GUIDELINES RELATING TO EIA

4.4.1 LAW AND PLANS RELATING TO EIA

The EIA system in Taiwan has been implemented through non-statutory administrative arrangements from its beginning in 1985. It was not until late 1994 that EIA was made legally enforceable after the introduction of the EIA Law. In order to implement EIA , the Government has introduced a series of "Plans" (guidance) since 1985. The legal basis for these "Plans" is: i) The Executive Order 1854 of 1983: For all of the Government's major economic and tourism development plans, as well as the construction of large scale factories by the private sector, which may cause environmental pollution, EIA is required to be conducted before approval of planning applications is issued; and ii) Chapter 3 (8) of the Guidelines for Environmental Policy at the Current Stage (*Executive Yuan 1987*): For those projects proposed either by public or private sectors, which are likely to have significant environmental impacts, EIA should be conducted in order to prevent or mitigate impacts.

The Plan for Strengthening EIA Implementation (guidance) came into effect in October of 1985 (*DOH 1985*). Several EIA Technical Guidelines for different developments were produced by the EPA and used as references by industry. 14 projects were chosen as the

EIA pilot studies. After 6 years of implementation of this plan, the basic form of the EIA system, in respect of concept, procedure, review and follow-up, had been established (*Chen 1992*). The Follow-Up Plan for Strengthening EIA Implementation (guidance) was enacted by the EPA in April of 1991 (*EPA 1991a*). EIA was implemented through a whole range of projects. The responsibility of the authorised authority in the EIA review process was strengthened. The objectives of the follow up Plan were: a) continuously promoting the EIA system, b) setting up the review procedure of EIA, c) executing the tasks of EIA follow-up and monitoring, d) training personnel, enhancing the functionality of the EPA, and e) establishing a liaison system for environmental information and strengthening environmental education. In November 1992, the follow up Plan was amended, whereby the right of EIA review was shifted from the authorised authority to the EPA, and the EPA carried out most of the work in the EIA procedure, and the authorised authority was only responsible for conducting site investigations and preparing their reports (*EPA 1992b*).

After a long debate and experimental exercises of implementing EIA through various non-statutory administrative arrangements from 1985, the EIA Law was finally passed by the Legislative Yuan (the Parliament) on the 15th of December, 1994 and came into effect on the 30th of December, 1994 (*Legislative Yuan 1994*). The enactment of this EIA Law is an important milestone in the evolution of the Taiwanese EIA system and has significant implications on EIA practice. The EIA Law comprises a set of 32 Articles grouped into four chapters, including major principles, impact assessment/review/follow-up, penalties/sanctions and appendices. There are several key points:

a. to emphasise the importance of, and to provide channels for public participation, in the EIA process (Articles 8, 9, 10, 12, 25),
b. to emphasise prevention of environmental impacts and pollution, rather than remedy (i.e. the authorised authorities cannot grant planning permits to project proponents, unless the EIA review by the EPA has been completed, Article 14),

c. to consider EIA reports as the development commitments which should be carried out by the project proponents, otherwise penalties/sanctions would be imposed (Article 17),

d. based on the results of EIA review, the EPA has a veto power on the planning applications (Article 14),

e. the EIA Law is applied retroactively to the projects previously approved which had been subjected to EIA, and the EPA may require the project proponent to submit Environmental Impact Investigation Reports, if necessary (Article 29),

f. to require EIA of government policies which are likely to have significant impacts on the environment (Article 26),

g. to define clearly the various stages and their time limits within the EIA procedure (Articles 7, 8, 9, 10, 12, 23),

h. to include the development and construction of nuclear power stations and radioactive waste storage/treatment plants in the screening list, and to be reviewed by the EPA (Article 5),

i. to require the costs of EIA review to be paid by project proponents (Article 27).

Seven secondary regulations, statutes and guidelines are being prepared or revised by the EPA in order to fulfil the objectives of the EIA Law. These include: the bylaw for EIA implementation; the Guidelines for Organising the EIA Review Committee; the Guidelines for Screening Criteria; the Statute for Charging the Costs of EIA Review; EIA Technical Guidelines; EIA Guidelines for Developments of National Defence and the Guidelines for EIA of Government Policies.

4.4.2 RELEVANT REGULATIONS, GUIDELINES AND PLANS RELATING TO EIA

Article 5 of the EIA Law 1994, lists 11 categories of development which must be subjected to EIA. They are as follows:

i. setting up factories and development of industrial parks,

ii. construction of roads, railways, mass rapid transit systems, ports and airports,
iii. quarry and mining,
iv. construction of reservoirs, water supply, irrigation and flood defence systems,
v. development and utilisation of agricultural, forestry, fishery and posture lands,
vi. development of recreational and scenic areas, golf courses and stadiums,
vii. development of cultural-educational and medical facilities,
viii. development of new townships or renovation of old townships,
ix. construction of environmental protection infrastructures,
x. construction of nuclear power stations and radioactive waste storage/treatment plants,
xi. other types of development defined by the central government.

The Guidelines for the detailed screening criteria, in terms of quantum, threshold or scale of various developments, for the above 11 categories are being prepared by the EPA. Moreover, according to the provisions of the Follow-Up Plan for Strengthening EIA Implementation (Amendment), there are 18 Regulations, Key Points and Plans relating to EIA (*EPA 1992c*). They are summarised in **Table 4.1** which also contains the types of development subjected to EIA. In the "Ministry of Economic Affair's Key Points Concerning Review and Approval of Pollution Control for Establishment of New Factories, 1988", industries are divided into type A and B. For type B industries, only Initial Environmental Evaluations (IEE) are required. EIA is required for type A industries. However, the full EIA reports, both IEE and EIS, have to be prepared if several type B projects are aggregated at the same location or if the total discharge of pollution may have significant adverse effects on environmental quality.

In order to speed up the process of EIA review, the EPA introduced a set of criteria, "Criteria for the Submission of EIS" (*EPA 1992d*), in December of 1992. If the submitted EIS does not satisfy the requirements of the criteria, in terms of content, format or submission procedure etc., the EPA will not accept or review the EIS. The environmental

protection authorities consist of two tiers, the EPA and the EPBs of local government. Whether the EIA of the proposed project is reviewed by EPA or EPBs of local government, depends upon the level of the authorised authority which issues the planning permit to the proponent. Apart from the aforementioned Regulations and Plans, 20 EIA Technical Guidelines and 14 EIA Operational Key Points have also been introduced by the EPA.

4.5 EIA PROCEDURE

In Taiwan, the EIA procedure, established in 1985, has been continuously evolving. In the relevant "Plans" and the EIA Law, the provisions relating to EIA procedures have been modified several times.

4.5.1 EIA PROCEDURES IN THE SERIES OF "PLANS"

The EIA procedure in the Plan for Strengthening EIA Implementation (October 1985 - April 1991) could be divided into 2 phases, technical and administrative phases. In the technical phase, the main parts of the work, including a baseline environmental survey, prediction and evaluation of impacts and preparation of an environmental management plan, were carried out by project proponents. The administrative phase included four activities, namely site investigation, preparing written representations, a public hearing and an EIA review meeting.

Table 4.1 Regulations, Key Points and Plans relating to EIA

No	Year	Regulations, Key Points and Plans	Authorised Authority	Type of Development	Environmental Authority
1	1983	Article 10, Enforcement Rules of the National Park Law	MOI	Developments in National Park	EPA
2	1986	Article 30(2), Statute for Slopeland Conservation and Utilisation	- COA - LG	Major developments on slopeland	- EPA - EPB of LG
3	1992	Article 7(6), Regulations Governing the Development Projects on Slopeland for Construction	LG	Development of slopeland for construction	EPB of LG
4	1990	Article 23, Regulations Governing the Development of Slopeland	- MOI - LG	Development of slopeland reserves	- EPA - EPB of LG
5	1989	Article 10, Wildlife Conservation Law	- COA - LG	Developments affecting the habitants of wildlife	- EPA - EPB of LG
6	1988	Article 12, Mass Rapid Transit Act	MTC	Construction of mass rapid transit system	EPA
7	1990	Article 23, Statutes for Upgrading Industries	Industrial Development Bureau of the MEA	Planning of industrial parks	EPA
8	1988	Article 3, Key Points Concerning Review and Approval of Pollution Control for Establishment of New Factories	Industrial Development Bureau of the MEA	Erection or expansion of factories that might cause pollution	EPA
9	1982	Article 7, Regulations Governing Special Scenic Areas (Amendment)	Tourism Bureau of the MTC	Projects in special scenic areas	EPA
10	1989	Article 5(1) Regulations Governing the Setting-up of Forest Recreational Areas	COA	Establishment of forest recreational areas	EPA

(continued)

NB: MOI: Ministry of the Interior

COA: Council of Agriculture

MTC: Ministry of Transportation and Communication

MEA: Ministry of Economic Affairs

LG: local government

Table 4.1 Regulations, Key Points and Plans relating to EIA (continued)

No	Year	Regulations, Key Points and Plans	Authorised Authority	Types of Development	Environmental Authority
11	1981	Protection Plan for the Natural Environment in Taiwan's Coastal Areas	MOI	Developments of coastal zones	EPA
12	1990	Article 131(10), Enforcement Rules of the Water Conservation Law	MEA	Reservoir construction	EPA
13	1985	Plan for the Natural Conservation in the Taiwan Area	MOI	Projects affecting natural environment	EPA
14	1989	Regulations Governing Management and Assistance in Public and Private Solid Waste Collection and Disposal Agencies	- EPA (hazardous waste) - LG (general & industrial waste)	Setting-up waste disposal grounds	- EPA - EPB of LG
15	1989	Article 33(1), Facility Standards and Disposal Methods for the Deposit and Clearing of Industrial Solid Waste	EPA	Dumping of solid waste into sea	EPA
16		Others Conditions			

Table 4.1 Key Points relating to EIA for local government

No	Year	Key Points	Authorised Authority	Types of Development	Environmental Authority
1	1989	Article 4(5), Key Points for Screening the Application of Developments Plans for Changing Non-Urban Lands into Lands for Recreational Purposes	Taiwan Provincial Government (TPG)	Development of recreational areas	EPB of TPG
2	1889	Key Points for Screening the Applications for Land Utilisation and New Enterprises concerning Public Transport in Taiwan Province	TPG	Transport Facilities	EPB of TPG

NB: TPG: Taiwan Provincial Government

The EIA procedure in the Follow-Up Plan for Strengthening EIA Implementation (April 1991 - October 1992), comprises two phases; an Initial Environmental Evaluation (IEE) and a full EIA. In the first phase, the IEE was submitted to the authorised authority which decided whether or not a full EIA was required, by consulting with the EPA and relevant agencies. When a full EIA was required, the proponent had to display the IEE at an appropriate public place near the project site for one month, and to hold a public presentation at the end of the exhibition. After the scoping meeting organised by the proponent, a draft EIS was prepared and submitted to the authorised authority which conducted the site investigation, public hearing and review of the draft. The EIS was produced by revising the draft, which was then sent to the authorised authority for confirmation. The EIS was then forwarded to the EPA for comments. The EPA had to complete the review process and made their comments within one month. The EIS and the review comments would then be published in the Gazette (Government Newsletter). The authorised authority then made the final decisions. The task of EIA monitoring and follow-up would be carried out by the EPA and the authorised authority respectively.

The EIA procedure in the Follow-Up Plan for Strengthening EIA Implementation (Amendment) (November 1992 - November 1994), was also divided into two phases. In the first phase, the project proponent submitted the IEE to the authorised authority, which would be passed to the EPA. The EIA Review Committee organised by the EPA examined the IEE and made comments within 60 days. If the full EIA was required, the proponent had to carry out the second phase of EIA procedure. In the second phase, the copies of IEEs were sent to the relevant agencies and displayed at a public place near the project site for at least 30 days. The proponent also had to publish the relevant information in local newspapers. At the end of the exhibition, the project proponent held a public presentation. Comments and representations from the local people and relevant agencies should be sent to the proponent, the authorised authority and the EPA within 15 days after the public presentation. The EPA invited representatives from the authorised authority, relevant agencies and subject experts to participate the scoping meeting. The

aim of this meeting was to identify the feasible alternatives and define the terms of reference. The proponent then prepared the draft EIS taking into account opinions from various sources. The draft was submitted to the authorised authority which conducted a site investigation along with the EPA, relevant agencies, subject experts and local people within 30 days. The authorised authority then prepared a site investigation report which was sent to the EPA together with the draft for review. The EIA Review Committee of the EPA must complete the review process within 60 days. The proponent had to revise the draft and sent the EIS to the EPA for confirmation and approval. The EIS and review results would be published in the Gazette.

4.5.2 EIA PROCEDURE IN THE EIA LAW

The EIA procedure defined in the EIA Law (see **Figure 4.1**) is very similar to that stipulated in the Follow-Up Plan for Strengthening EIA Implementation (Amendment). There are only four provisions which are different.

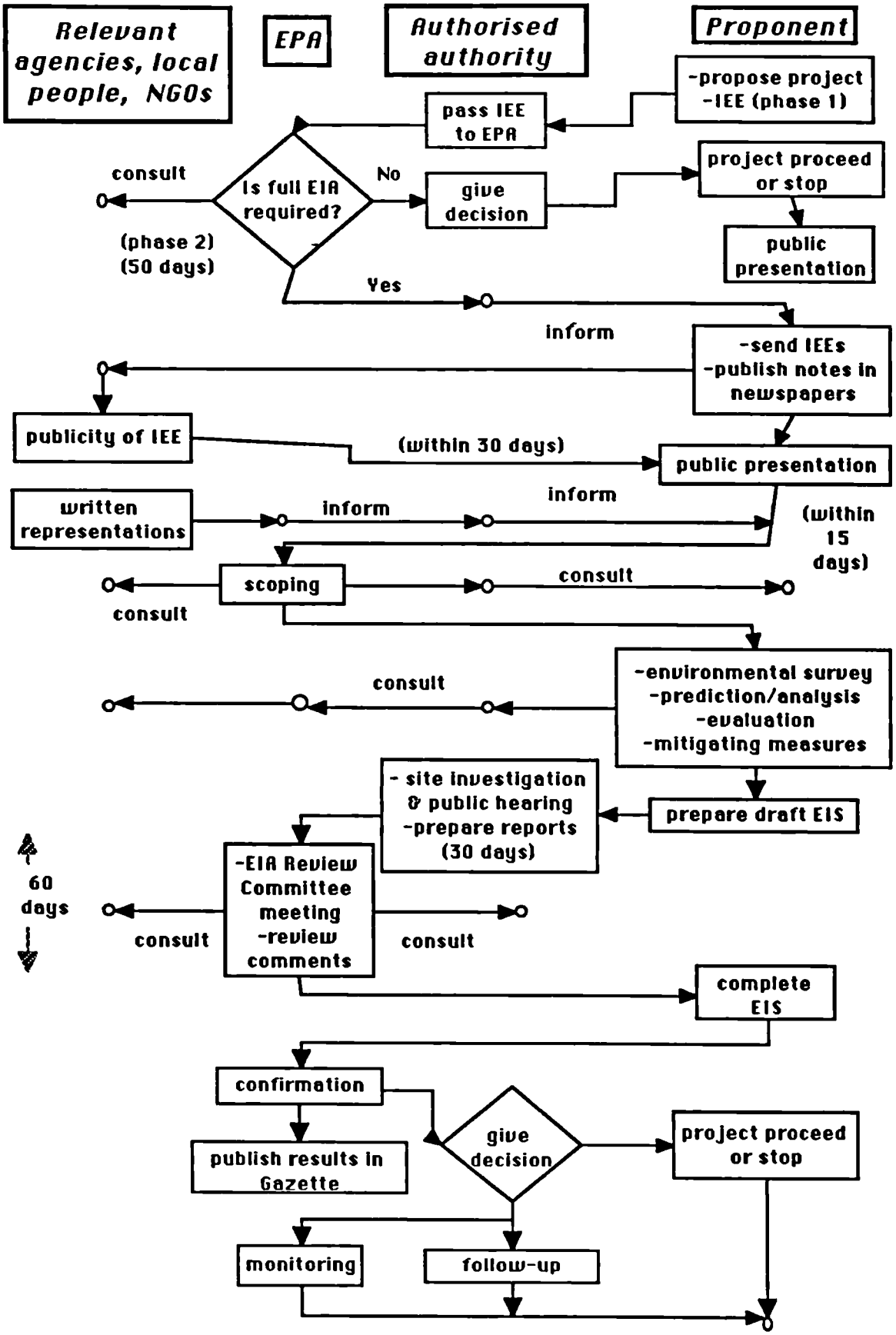
i. The time limit for reviewing an Initial Environmental Evaluation is shortened from 60 days to 50 days.

ii. If the review of an Initial Environmental Evaluation concludes that the second phase of EIA (full EIA) is not required for the proposed project and the approval is given, the project proponent should nevertheless hold a public presentation.

iii. Apart from conducting a site investigation, the authorised authority also has to hold a public hearing. The reports of the site investigation and public hearing will then be prepared by the authorised authority and be passed to the EPA within 30 days after they receive the draft EIS.

iv. If the conclusion of EIA review is that the proposed project should not proceed, the authorised authority must not issue the planning permit. However, the proponent may be allowed to submit an EIA of an alternative proposed project to the EPA for review.

Figure 4.1 The flow chart for the EIA procedure in the EIA Law



4.5.3 EIA REVIEW PROCEDURE

4.5.3.1 Ownership of the right of EIA review

From the establishment of the EIA system, the ownership of the right of EIA review has been shifted from the authorised authority to the EPA. **Table 4.2** summarises these changes.

Table 4.2 Ownership of the right of EIA review

Plans and Law	IEE	Draft EIS	EIS
Plan for Strengthening EIA Implementation	---	reviewed by EPA which is assisted by AA	reviewed by EPA
Follow-Up Plan for Strengthening EIA Implementation	reviewed by AA which is assisted by EPA	reviewed by AA which is assisted by EPA	reviewed and confirmed by AA; commented on by EPA
Follow-Up Plan for Strengthening EIA Implementation (Amendment)	reviewed by EPA	draft EIS and report of site investigation (prepared by AA) reviewed by EPA	confirmed and approved by EPA
EIA Law	reviewed by EPA	draft EIS and reports of site investigation and public hearing (prepared by AA) are reviewed by EPA	confirmed and approved by EPA

NB:
AA: authorised authority EPA: environmental protection authority

4.5.3.2 Guidelines for Organising the EIA Review Committee of EPA

A significant change in the internal EIA review procedure of EPA was made after the introduction of the above guidelines in August of 1993 (*EPA 1993c*). The reason for setting out this new EIA review procedure is to match the future needs and improve the administrative efficiency. The review work is carried out by a preliminary review group and the EIA Review Committee. For the former, three to five of the EIA Review Committee members assigned by the Administrator of the EPA meet together with representatives of relevant agencies and other subject experts. Interested parties and local

people may be invited to attend the meeting of the preliminary review group. Forty five subject experts have been identified by the EPA and categorised into three groups: industrial development, land utilisation and development of new townships.

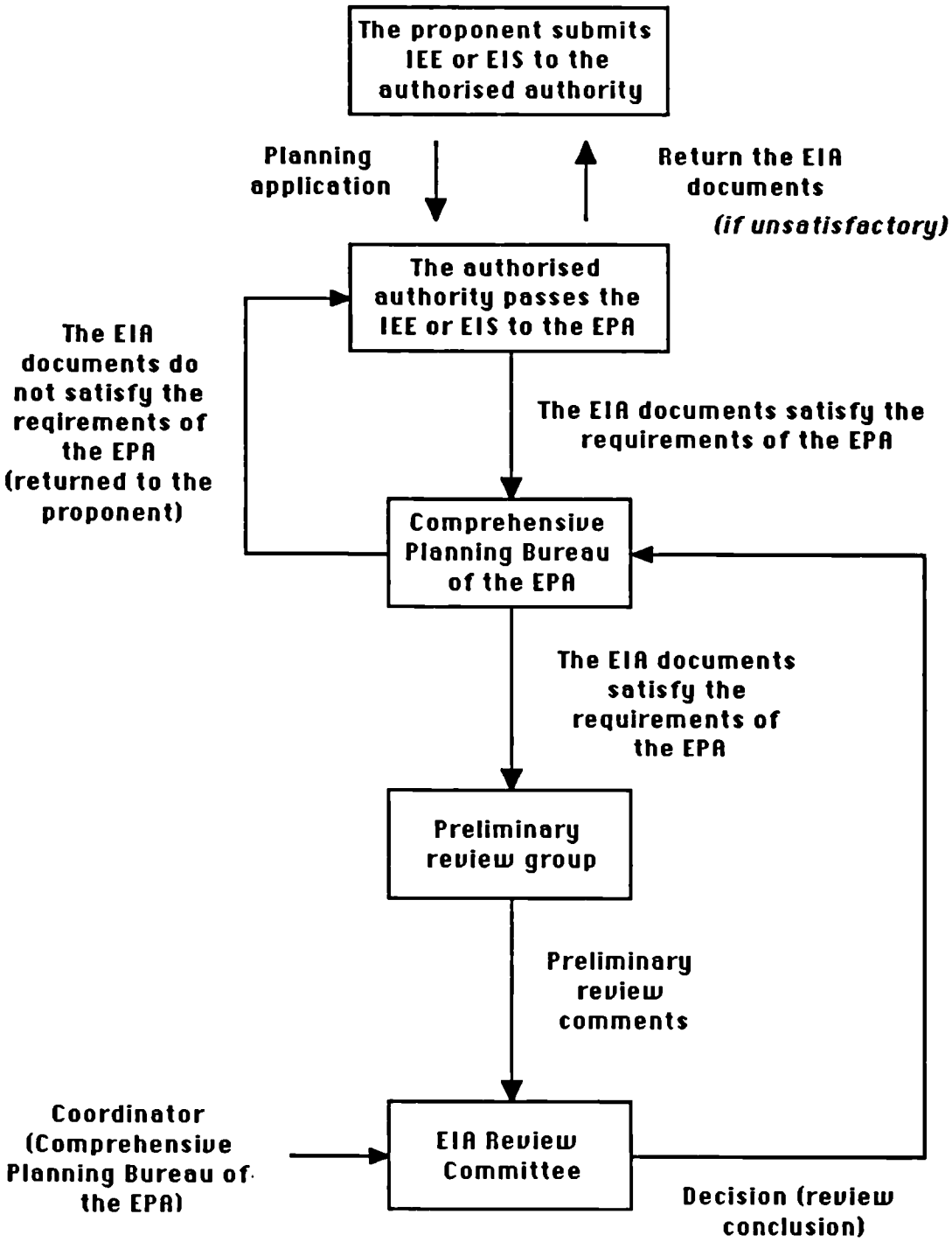
For a newly proposed project, the responsibility of the preliminary review group is to conduct a scoping of the project and review the IEE. The EIA Review Committee makes the decision on the IEE by considering the recommendations of the preliminary review group. The draft EIS is also reviewed in the group and then forwarded to the EIA Review Committee. The proponent, then, has to produce the EIS and send to the EPA for confirmation. In this review process, the EIA Review Committee only look deeply into those cases which are considered problematic or relating to national policy. Most of the technical aspects of the review work are done by the preliminary review group. Based on Article 3 of the EIA Law, if the authorised authority is also the project proponent, the representative of that authority in question should not be involved in the decision-making of the EIA Review Committee. The internal EIA review procedure is shown in **Figure 4.2**.

4.6 ROLE OF ACTORS INVOLVED IN THE EIA PROCEDURE

The actors involved in the EIA procedure are the proponent, the EPA, the EIA Review Committee, the authorised authority, relevant agencies, as well as local people and interested parties. The roles and responsibilities of some actors have been changed over the past few years, especially the EPA and authorised authority.

Figure 4.2 EIA review procedure

(source: Guidelines for Organising the EIA Review Committee, 1993)



While enacting the Follow-Up Plan for Strengthening EIA Implementation, the Government mainly referred to and modified the EIA systems as used in the USA and Japan. The principle was that the authorised authority played the leading role in the EIA procedure, which was responsible for the review of EIA and making the final decision. The EPA just acted as a statutory consultee. However, after its implementation, this procedure was strongly criticised as the authorised authority had the roles of both the player and the judge. Because of this criticism, the Follow-Up Plan for Strengthening EIA Implementation (Amendment) and the EIA Law transferred the task of EIA review from the authorised authority to the EPA.

According to the EIA Law of 1994, the environmental protection authorities (both the EPA and EPBs of local government), are required to organise the EIA Review Committees. Moreover, the number of subject experts should not be less than two thirds of the Committee members. For instance, the members of the EIA Review Committee of the Environmental Protection Administration consist of 21 persons whose term of office is two years, including i) Administrator (Chairman of the Committee), Deputy Administrator, Director General of Comprehensive Planning Bureau, Environmental Protection Administration; ii) Deputy Ministers of the Ministry of the Interior, the MEA, the Ministry of Transportation and Communications and Deputy Administrator of the Council of Agriculture ; and iii) 14 subject experts. Currently, the EIA Review Committees which have been organised, are the EIA Review Committee of Environmental Protection Administration (chaired by the Administrator of the EPA), the EIA Review Committee of Taiwan Provincial Government (TPG) (chaired by the Director General of EPB of TPG), and the EIA Review Committees of County Government chaired by County Governors (to date there has only been one County Government EIA Review Committee organised by the Taipei County Government). Since July 1993, the EPB of TPG has delegated the power of EIA review to its three Regional Centres to review the EIA of private sector projects. The EIA Review Committees of these three Regional Centres do not have a fixed membership but are constituted

depending upon the features of the proposed projects. The EIA of public sector projects are still reviewed by the EPB of TPG.

4.7 EIA COMPLIANCE MONITORING AND ENFORCEMENT

In Taiwan, the work of EIA monitoring and follow-up has been incorporated into the EIA system through non-statutory administrative arrangements since 1991. Currently, the work is carried out by the EPA or the EPBs of local government for which the EIA cases are reviewed by either the EPA or the EPBs of local government respectively. Article 18 of the EIA Law states that "the authorised authority should carry out follow-up throughout the phases of project construction and operation, and the EPA is responsible for monitoring the implementation of the IEE and EIA decisions, and also the EPA may require the project proponents to submit Environmental Impact Investigation Reports on a regular basis (if necessary)". Currently, the EPA plays the leading role in the programme of EIA compliance monitoring and enforcement.

4.7.1 THE PROCEDURE OF EIA COMPLIANCE MONITORING

At present, the way that the EPA conducts EIA monitoring and follow-up is that the EPA contracts out an independent NGO to coordinate the work. Firstly, the NGO screens out a list of EIA cases which are considered critical or problematic every July. The list is confirmed by the EPA. The NGO then coordinates a Task Force which consists of subject experts to carry out the work. The members of the Task Force consist of 17 subject experts whose term of office is one year. Some experts from local Universities or Institutes may be invited to assist the Task Force (*EPA 1993d*). The Task Force undertakes site visits in association with relevant agencies and local governments. In the process of EIA monitoring and follow-up, there are three types of EIA monitoring forms that must be completed by the project proponents and submitted to the EPA annually.

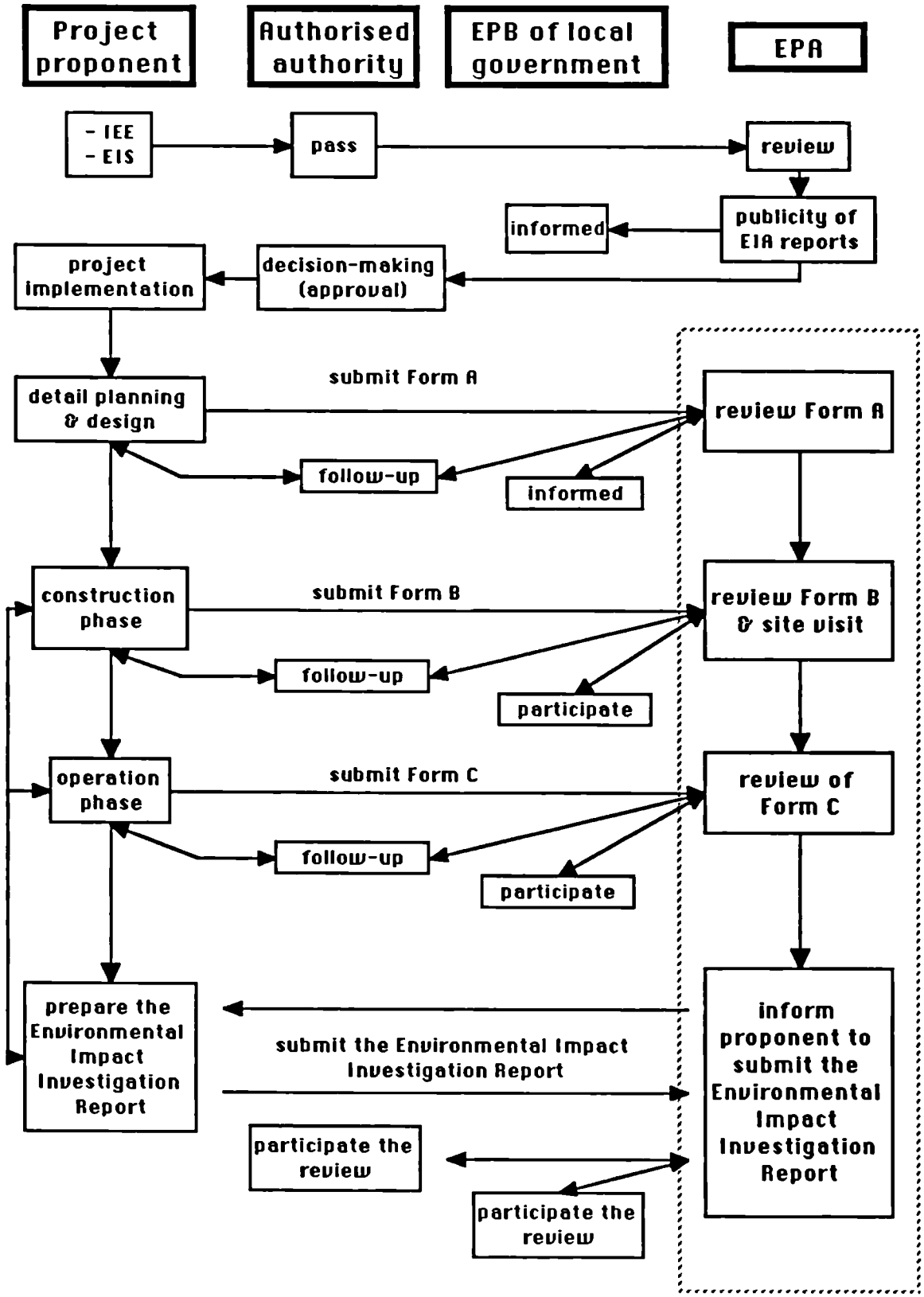
These forms include: Form A (for the projects of which the EIA review are completed); Form B (for the projects under the construction phase); and Form C (for the project under the operation phase) (*EPA 1993e*). If the results of EIA monitoring and follow-up are not satisfactory in three consecutive years during the construction phase of the project or if there are serious breaches of EIA review conclusions and commitments, the EPA may ask the proponent to submit an Environmental Impact Investigation Report. The framework of the EIA monitoring and follow-up programme is shown in **Figure 4.3** (*Chen 1995*).

Owing to constraints of man-power and budget, the compliance monitoring work is not currently conducted for the whole range of EIA cases. The EPA has listed a set of selection criteria, including: i) The information provided in the Form B is found to be incorrect, ii) There are public disputes which have not been resolved, iii) The main contents of the project have been modified, iv) Major developments cause significant impacts on the environment or generate serious pollution problems, and v) Major developments carried out by the Central Government.

4.7.2 THE EXTENT OF EIA COMPLIANCE MONITORING AND ENFORCEMENT

In 1991 and 1992, 15 cases were chosen for each year. In 1993 and 1994, 19 cases and 40 cases were selected respectively. If breaches of the planning conditions have occurred, the EPA must inform the authorised authority which will require the proponent to comply with the planning conditions imposed. In the worst case, the authorised authority can stop the project proceeding. It is EPA's intention to develop a model as a basis to formulate the bylaw of EIA, "Enforcement Rules of EIA Monitoring and Follow-up", which contains provisions relating to the procedures, implementation and sanctions of EIA monitoring and follow-up.

Figure 4.3 The framework of the EIA monitoring and follow-up programme
(source: EIA Monitoring and Follow-up, 1995)



4.8 THE STATUS OF EIA REPORTS (IEE AND EIS)

The provisions, relating to the contents and format of IEE and EIS, defined in the follow up Plan, its amendment and the EIA Law are slightly different. Currently, the contents and format of an IEE are; i) name of the company, ii) name and address of the proponent, iii) signature of the consultant, iv) project site and name of the proposed project, v) contents and purpose of the proposed project, vi) scope of possible impacts and baseline environmental status, vii) impact prediction, viii) mitigation measures and alternatives, ix) budget for environmental protection, and x) summary table of measures for impact prevention and mitigation. As for an EIS, in addition to the requirements of an IEE, it also contains impact analysis and evaluation, an environmental management plan, responses to the opinions raised from the relevant agencies, local people and interested groups, and conclusions and suggestions, as well as references.

From 1985 to October of 1993, the EPA received 300 EIA cases in total. Of these 246 had completed the review process. Fifty four out of 246 EIA cases were rejected and 23 were returned to the proponents because the EISs did not satisfy the requirements of the EPA (*EPA 1993f*). The details are illustrated in **Table 4.3**. However, the aforementioned data do not include the number of EIA cases reviewed by the EPB of TPG, since the EPB of TPG was delegated the right of EIA review by the EPA according to the Follow-Up Plan for Strengthening EIA Implementation in 1991. No EIA tracking system or central EIS database has been set up by the EPA. Up to 1993, the EPB of TPG have received 59 EIA cases and completed the review process over 50 cases. The geographical distribution of EIA cases in Taiwan is shown in **Figure 4.4** (for approved EIA cases only). The EPA has carried out a regular evaluation of the already-approved EISs in order to improve the experience for and quality of EIS preparation.

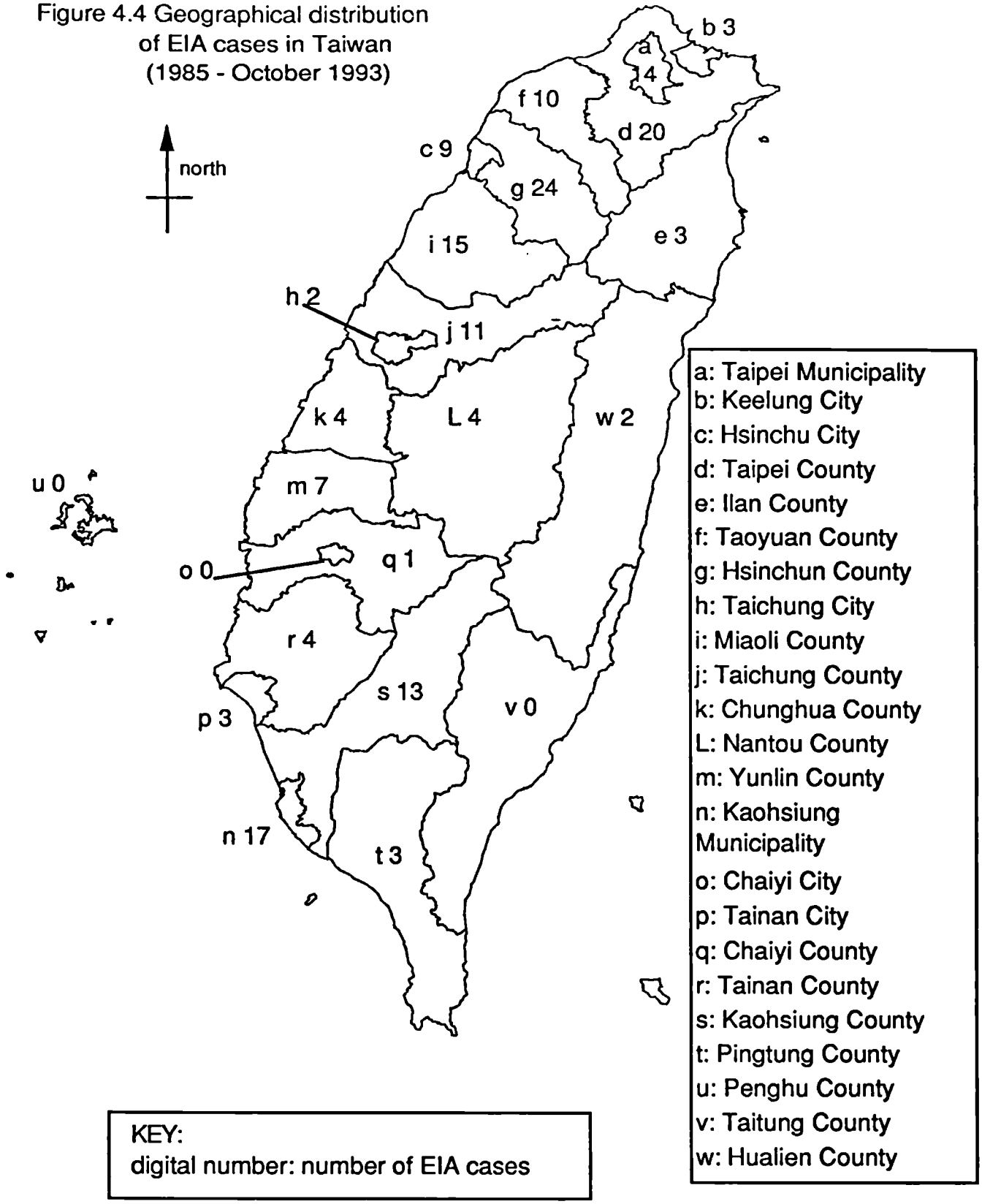
Table 4.3 The number and types of EIA cases (1985 - October 1993)

TYPES	Returned (%)	Approval (%)	Rejected (%)	Total
Development projects of water resources	0	5	0	5
Power plants (hydraulic, thermal & nuclear)	0	15	1	16
Transportation development	1	17	3	21
Environmental protection projects	1	34	10	45
Development plan of newly created land	0	4	1	5
Establishment of factories and industrial parks	0	28	16	44
Development of scenic and recreational areas	0	4	3	7
Cultural and educational development plans	5	3	3	11
Development of golf courses	2	41	6	49
Development of residential areas on hillside sites	13	14	9	36
Others	1	4	2	7
Total	23 (9%)	169 (69%)	54 (22%)	246

NB:

Returned: The number of EISs were returned to the proponents because the EISs did not satisfy the requirements of EPA

Figure 4.4 Geographical distribution of EIA cases in Taiwan (1985 - October 1993)



4.9 RESOURCE AVAILABILITY FOR EIA IMPLEMENTATION

4.9.1 EIA TRAINING

As the EIA system has been continuously developing, the man-power in the environmental protection authorities, at both the central and local levels, has been gradually strengthened. EIA education and training are recognised as being very important and necessary. Since 1987, the EPA has organised EIA training programmes for its staff and officials in the EPBs of local government. The Bureau of Comprehensive Planning of the EPA was responsible for coordinating and organising these courses held on a regular basis. After its establishment by the EPA in July 1991, the National Institute of Environmental Training (NIET) has taken over the duty of EIA training. More than 460 government officials had completed EIA training courses by 1993 (*NIET 1992, 1993*). Currently, all the participants in these EIA training courses are from environmental protection authorities, authorised authorities or state-run companies. The costs are borne by the EPA. In addition, 30 officials selected from the EPA and relevant Ministries/Councils were sent abroad to participate EIA training courses sponsored by the EPA.

4.9.2 EVALUATION SYSTEM FOR CONSULTANCY FIRMS

The EPA has commissioned pilot research on developing an evaluation system for private consultancy firms in 1993 (*Tin 1993*). It is the EPA's intention to generate a recommended list of qualified consultants, which can be used by project proponents as a reference when tendering for contracts. In this way, the technical capabilities of consultants could be promoted and the quality of EIS preparation could be improved. EIA cases will thus be handled more effectively since the time of EPA and EIA Review Committee will not be wasted on poor EIA documents.

4.9.3 APPLICATION OF GEOGRAPHICAL INFORMATION SYSTEMS (GIS) in EIA

In Taiwan, the EPA has launched the project to apply GIS in the establishment of an Environmental Quality Database. Since 1992, the EPA has also commissioned a project to set up an environmental database for water bodies and coastal zones using GIS. The main aim of this project is to integrate environmental information scattered among various agencies and make this information available during the EIA review process. The results of EPA's monitoring network are used together with GIS technology. The results of reviewed EIA cases are incorporated into the database. It is the EPA's intention to establish this Environmental Quality Database to feedback and support the work of environmental protection and management, including EIA implementation.

The Environmental Quality Database is one part of the National Territory Information System (NTIS) which was commissioned by the Government in 1990. The NTIS is an inter-departmental information operation system formulated from the integration and modification of the existing information operation systems within the Government. The objectives of establishing the NTIS (*Liu 1992*) are to:

i. integrate spatial data which are originally scattered among various agencies and organisations, by using GIS,
ii. set up a comprehensive, common use and compatible information system to assist the planning of allocating natural resources and to use it as a support tool for decision-making in the process of planning and analysis of national policies and plans.

The NTIS is a cross-sectoral operation which consists of 12 subsidiaries responsible by the various governmental agencies. Since 1991, the Government has launched the Six-Year National Development Plan. Its major objectives are to rebuild social and economic order and promote balanced development. There are four key policy goals, such as raising national income, providing sufficient resources for continued industrial growth, promoting balanced industrial growth and raising the national quality of life (*Government*

Information Office 1991). The NTIS will be used to support the goals of the Six-Year National Development Plan. It is worthy of notice that promoting the EIA system is one of the eight major tasks of the EPA, stipulated in the plan (*Council for Economic Planning and Development 1992*).

However, some difficulties have been encountered by the Government in establishing the NTIS. Coordination among various governmental departments is poor. The officials responsible for promoting the NTIS are usually low level staff. Every agency has its own vested interest. Moreover, the Ministry of the Interior, the leading authority for developing the NTIS, has no power to monitor and follow-up the work. The understanding and anticipation of various agencies towards the NTIS are quite different which has created difficulties in implementing this project.

4.10 CASE STUDY: THE SIXTH NAPHTHA CRACKING COMPLEX (SNCC)

A project for developing the Sixth Naphtha Cracking Complex (SNCC) was proposed by the Formosa Plastics Groups, the biggest private manufacturing conglomerate in Taiwan, with a project budget of 5.89 billion pounds of which 0.83 billion pounds would be spent on pollution control. The planning application was first submitted to the Government for approval in September 1986. After almost seven years of negotiation and examination, the EIA of SNCC was finally approved by the EPA and the planning permit was issued in July 1993. The project will be the largest ever private invested project in Taiwan and is expected to be completed by March 1998. It is estimated that about 100,000 jobs would be created locally, and a further 750,000 in associated relevant business and industries. 1.35 million metric tons of ethylene will be produced per year, which will increase the domestic supply rate of petrochemical raw materials from 40% to 80%, and also make Taiwan the 12th biggest petrochemical production nation in the world. In addition, it is

estimated that the project will increase GNP by about 1.4% annually (*Central Daily News 1993*). A study of the planning and EIA process of this project provides a overview of the conflicts between economic development, environmental protection and land utilisation that have occurred in Taiwan over the past few years.

4.10.1 EVOLUTION OF THE CASE

From 1986 up to its approval, considerable delays occurred in the environmental evaluation of the project. Four alternative sites have been considered since 1986. However, the proponent did not assess these four alternatives at the same time, because the alternatives emerged as a result of successive opposition and difficulties associated with proposed project sites. The details are briefly discussed as follows.

It was proposed originally that the plant should be located in Ilan County, eastern Taiwan. The proponent held a public presentation for the proposal in November of 1986. The Ilan County Council passed a bill to support the project. One of the local interested groups also supported this proposal. The EIS of SNCC was submitted to the EPB of the DOH for review in July of 1987, according to the requirements of the Plan for Strengthening EIA Implementation. However, the County Government insisted that they would contract the Graduate Institute of Environmental Engineering, National Taiwan University, to examine the EIA on their behalf and that the final decision should not be reached until this investigation was completed. Moreover, the County Governor opposed the project and proposed to hold a referendum in Ilan to determine the fate of SNCC. At the same time, the Ilan Branch of Taiwan Environmental Protection Federation (a NGO) also opposed the project. This anti-SNCC force gradually became stronger and put pressure on the County Council, the EPA and the Industrial Development Bureau of the Ministry of Economic Affairs. The main reasons that the Ilan Government was against this project were: i) The project was not compatible with the future direction of development in Ilan, since the County was designated to become a tourism and agricultural oriented County

according to the "Comprehensive Planning of Taiwan" and "Regional Planning for Northern Taiwan"; ii) Pollutants could not be easily dispersed because of the territorial conditions; and iii) The project may affect the ocean ecology and fishery resources which are important to the County (*Chang 1993; Hsh 1990; Bureau of Comprehensive Planning 1991*).

The County Government strongly held the view that the project contradicted the design of the National Territory Plan, and sought clarification from the CEPD, the Ministry of the Interior and the MEA. However, these authorities took the view that the project was not in contravention of the Regional Planning for Northern Taiwan. Nevertheless, the findings of EIA review done by the National Taiwan University concluded that the project was likely to have significant environmental impacts and should not proceed (*Yu & Lo 1987*). Because of this opposition, the proponent informed the EPA to suspend the EIA review. In March 1988, the company proposed to shift the project to Taoyuan County (*Chang 1993; Bureau of Comprehensive Planning 1991*). The opposition to this location was not as strong as that from Ilan. In May 1988, the EPA held the site visit and public presentation. The final EIA review meeting was on 18th of July 1988 and the project was approved. The planning permit was issued by the MEA. But, the project was not implemented because of the following reasons: i) There was an argument about the ownership of the industrial port at Kun-in; ii) The land price had increased significantly; iii) Devaluation of New Taiwan Dollars; iv) Labour disputes; v) Working efficiency declined; and vi) Shortage of labour force.

The next stage in the planning process occurred when the Industrial Development Bureau proposed to set up offshore industrial parks in western Taiwan. Two possible sites were identified, including Yunlin and Chiayi Counties. The Yunlin Governor agreed to support SNCC if the work of environmental pollution control could be properly carried out. Therefore, the Formosa Plastics Groups proposed to shift its project to Mailiao, Yunlin County. It was proposed to locate the SNCC (phase one) at the Offshore Fundamental

Industrial Park at Mailiao in Yunlin County (see **Figure 4.5**) (*Formosa Plastics Groups 1991*). The announcement of the proponent was warmly welcomed by the Yunlin Government and local people. In Yunlin, many people have migrated to adjacent Counties, due to the poor economic conditions and lack of employment opportunity. The local people hope that this project will improve the situation. In May 1991, the EIA review of Yunlin Offshore Fundamental Industrial Park was completed and approved, with some conditions attached. One important condition was the requirement to incorporate the concept of integrated pollution control. This has later caused confusion while reviewing the EIAs of the SNCC and the industrial park. In June 1991, the CEPD reviewed the plan of Yunlin Industrial Park proposed by the MEA. The EPA opposed the plan because the EIS of the plan was not yet finalised. There were also arguments over land utilisation among relevant authorities. On 18th of June 1991, the MEA negotiated with the Ministry of Transportation and Communication, the Ministry of the Interior, Taiwan Provincial Government and the Council of Agriculture to revise the relevant regulations and plans so that the ambiguity of land utilisation could be resolved. Local people from 20 villages and towns held a parade to welcome the SNCC. In August 1991, the EIS of SNCC was submitted to the EPA for review. While reviewing the EIS of the SNCC, the EPA predicted that the carrying capacity of the industrial park could not assimilate the amount of pollution generated by the SNCC and other planned industrial developments. Moreover, there were some misunderstandings between the EPA and Industrial Development Bureau. The EPA insisted that the EISs of the SNCC and the industrial park ought to be reviewed together. On 29th of January 1992, the EPA held the second EIA review meeting. A conditional approval was given (*EPA 1992e*).

In addition to the SNCC (phase one), the FPG also proposed the SNCC (phase two), which expanded the production of ethylene form 450,000 metric tons to 1.35 million metric tons annually and located at the Hi-Fun area of the Yunlin Industrial Park, and an Industrial Port in November 1992 (*Formosa Plastics Groups 1992a, 1992b*). The review

of the EISs of these two projects was completed on the 2nd and 18th of June 1993, respectively (*EPA 1993g*).

4.10.2 DISCUSSION OF THE CASE

The original plan to locate the project in Ilan, was shifted to an alternative site due to strong local opposition. The Ilan Branch of Taiwan Environmental Protection Federation (a NGO) had run a strong anti-SNCC campaign which forced the proponent to give up the plan, rather than to require the proponent to propose other modifications. There were also arguments concerning the land utilisation proposed in the project and the designated use in the regional plan. In addition, Ilan County Government hired experts to investigate the EIS of the SNCC which concluded that the EIS was unsatisfactory. It was apparent that there was a mistrust between the County Government and the EPA. The second proposed project site in Taoyuan aroused much weaker local opposition to the project than that in Ilan. The EIA process was carried out smoothly, but the project did not proceed due to a poor investment climate. Although it was finally agreed to locate the project in Yunlin, there was an argument between the MEA and the EPA about whether or not the EISs of the SNCC and the Industrial Park should be reviewed together. This caused confusion in the EIA procedure and it was apparent that coordination between the MEA and the EPA was poor. The Industrial Development Bureau of MEA did not inform the EPA about its agreements with other relevant authorities. Also, there was an ambiguity of land utilisation which was not resolved until the EIS of the SNCC (phase one) was submitted. Moreover, there were some criticisms of the quality of the EISs, which was said to be poor and too long. It was also observed that tremendous support to the project was offered by local people because of the potential socio-economic benefits that would be generated by the project.

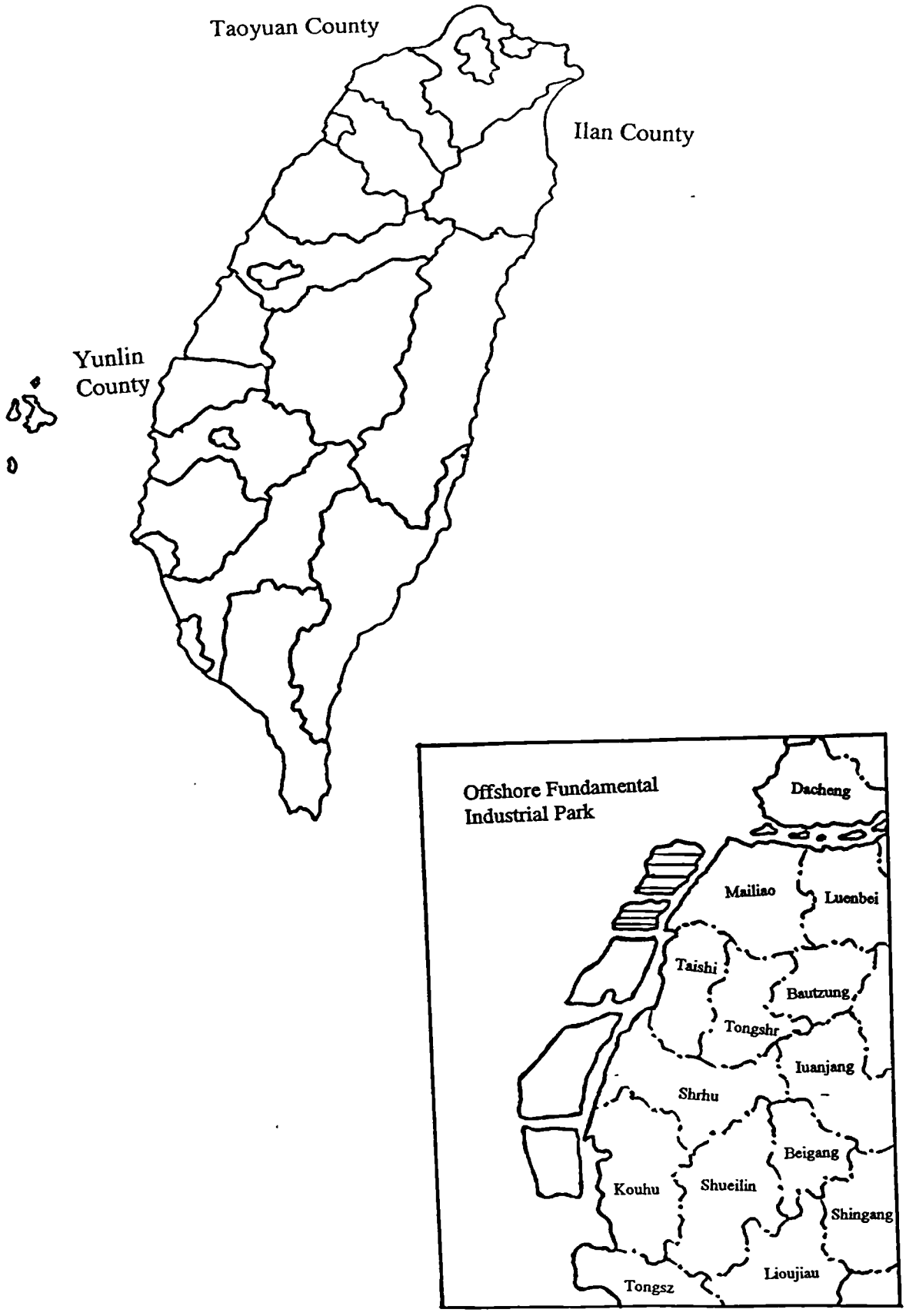


Figure 4.5 The project site of the Sixth Naphtha Cracking Complex

4.11 EFFECTIVENESS OF THE EIA SYSTEM

4.11.1 ACHIEVEMENTS AND SHORTCOMINGS OF THE CURRENT SYSTEM

Environmental Policies, Regulations and Guidelines

After the introduction of the EIA Law in 1994, the legal basis for EIA implementation has been provided which makes EIA legally enforceable (2.1 - 3)[c] . The legal basis for EIA compliance monitoring and penalties/sanctions against non-compliance are also provided (2.1 - 9). One of the key provisions in the EIA Law worthy of notice is the requirement to conduct EIA for governmental policies and strategic plans which are likely to have significant impacts on the environment (strategic environmental assessment) (1.2 - 9; 2.1 - 2). This is an important step in the evolution of EIA in Taiwan. Very few countries have formally stipulated this requirement in their EIA systems/legislation. Although knowledge and experience of SEA are still relatively limited, the Taiwanese Government has shown its determination and intention to incorporate this procedure.

However, in the current system there are no clear screening criteria or thresholds, in terms of quanta, features or scales of developments (2.1 - 4). The EPA is preparing the draft "Guidelines of Screening Criteria and Items for Various Development", but it has not yet been finalised. Although EIA technical guidelines for various types of development are in place for use of preparing EIA reports and reviewing EIA (2.1 - 7), relevant bylaws and guidelines for EIA implementation, based on the newly enacted EIA Law, are still in preparation (1.2 - 1; 2.1 - 5). There are some difficulties in interpretation, thus one of the provisions requires that the EIAs of two (or more) different projects should be conducted together if they are to be located at the same site, but it does not define clearly the scale of the site. Further shortcomings are that there are no provisions in the EIA Law, which require the conduct of an EIA for "no-action alternative" (2.1 - 6). There is no legal basis

[c] As in Chapter 1 and 2, these notations refer to the components and elements listed in Table 1.2 and 2.1. As before, the components and elements are referred to by table and item number (s), e.g. 2.1 - 3.

and guidelines for appeals and the settlement of disputes (2.1 - 8). Due to lack of comprehensive national and regional planning, ambiguities of land utilisation have emerged in some EIA cases (2.1 - 2). For instance, there was an argument about land utilisation in the cases of the SNCC in Ilan County and Yunlin County. Although the Ilan County Government was not satisfied with the clarification given by the relevant agencies, there was no channel for settlement of the dispute.

Environmental Administrative Framework

The responsibility for development and management of the EIA system is explicitly allocated to the EPA (1.2 - 2; 2.1 - 10). The way of allocating the task of EIA implementation is decentralised, and the work is shared by the EPA and EPBs at both central and local levels. The EPA has organised annual meetings with local governments and relevant participating agencies to review the progress of EIA implementation and to exchange views, experience and information (2.1 - 11, 12). Each of the participating central departments has set up a working unit or has allocated the task to specific officers to coordinate EIA work (2.1 - 15).

Although the EPA was upgraded from the EPB of DOH in 1987, its status within the Central Government is lower than other Ministries, Councils and Commissions. This has resulted in difficulties for the EPA in promoting environmental protection and management, including EIA. The coordination, communication and cooperation among participating agencies were not effective (2.1 - 13), especially between the EPA and authorised authorities (2.1 - 14), which was illustrated in the case of the SNCC. In 1986, the Executive Yuan organised an inter-departmental Environmental Protection Committee to coordinate and supervise environmental protection work. However, the decision-making on environmental protection was unavoidably influenced by the political-economic conditions at that time. It was difficult for the Committee to make an objective arbitration when there was a conflict between environmental protection and economic development, and the Committee was abolished in 1993. Although Committee of

Environmental Quality Advisors is still in operation under the EPA, its effectiveness and power are limited. Therefore, in the current system there is no committee like the US Council on Environmental Quality to bring together during the decision-making process different opinions on the proposed projects raised from various interested departments. There are also problems in the EPBs of local government, which lack sufficient man-power and budget to carry out the work of environmental protection and management at local level (1.2 - 8). It is difficult for local governments to implement comprehensive and formal EIA procedures, and EIA compliance monitoring and follow-up, due to lack of sufficient resources. This problem is even worse at County level (2.1 - 44, 47).

EIA Procedure

Although the current EIA procedure is not yet fully comprehensive, it stipulates clearly the sequential steps to be followed by participating parties in the process and has created mechanisms for responsible agencies to administer EIA cases (1.2 - 3; 2.1 - 18). The EIA procedures have been modified several times by the EPA in the light of experience since 1985, from non-statutory administrative arrangements to mandatory requirements (2.1 - 41). Formal scoping meetings and site visits are conducted by the EPA and the authorised authority respectively (2.1 - 17). Prior to the scoping meeting and the preparation of an EIA report, public consultation has to be carried out, by means of a public presentation held by the project proponent (2.1 - 19, 20). The time limit for each key step of the EIA procedure is clearly defined in the EIA Law (2.1 - 25).

There is no formal screening process incorporated in the current EIA procedure (2.1 - 16). If the review of an IEE concludes that the second phase of the EIA procedure is not required and the proposed project is approved, the proponent has to hold a public presentation. However, there is no channel for local communities, interested groups or relevant agencies to appeal against the decision and require a full EIA to be undertaken (2.1 - 24). Similarly, there is no channel for the proponent, local people, interested groups or relevant agencies to appeal if they disagree with the final decision given after the

review of the EIS is completed. The current administrative system provides no mechanism for resolving the problems of appeal. No formal procedure is established for the public and interested parties to inspect the draft EIS prior to the public hearing; no formal channel is provided for the public and interested parties to obtain copies of the EIS (2.1 - 23).

Role of Actors Involved

In the current system, the roles and responsibilities of various participants have been clearly defined (1.2 - 4; 2.1 - 26). Since the outset in 1985, EIA cases have been reviewed by independent EIA Review Committees (2.1 - 27). The membership and internal review procedures of the Committees have been modified in the light of experience, in order to improve the effectiveness of EIA review and decision-making (2.1 - 21, 41).

Although EIA cases are reviewed by independent EIA Review Committees, the members of the Committee organised by the EPA do not include representatives of local government and local people. Local opinion has no say or influence at the point of decision-making (2.1 - 22, 27, 40). There is a Petition Deliberation Committee under the EPA, mainly responsible for the settlement of public nuisance disputes. The Committee is not able to handle appeals relating to EIA since it is under the Administrator of the EPA who is also the chairman of the EIA Review Committee. The existing Committee of Environmental Quality Advisors is also under the Administrator. Unlike the USA, there is no involvement of courts or a superordinate body in the EIA system, which can act as a referee to evaluate complaints of local people or interested groups against the project proponents, resolve disputes among participating agencies, handle appeals, or interpret the EIA Law as applied in specific instances (*Ortolano et al. 1987*). This is one of the major defects in the current system (2.1 - 28, 29).

EIA Compliance Monitoring and Enforcement

The EPA has commissioned an independent NGO to carry out the programme of EIA monitoring and follow-up since 1991 (1.2 - 6; 2.1 - 30). To comply with the requirements of the EIA monitoring and follow-up programme, the project proponents have to submit one of the three EIA monitoring forms to the EPA for reference on a regular basis, according to the various stages of the projects (2.1 - 32). Based on the EIA Law, decision-making in EIA cases has been closely linked with the process of issuing planning permits by the authorised authorities. Moreover, the EIA review bodies have a power of veto over planning applications (2.1 - 35).

Due to the constraints of man-power and financial resources, the programme of EIA monitoring and follow-up does not apply to all EIA cases (2.1 - 31, 47). Although local communities may be consulted in the process of EIA compliance monitoring, there are no formal channels for local people to be involved in the programme and to access the monitoring results (2.1 - 33).

EIA Implementation in Practice

In the case of SNCC, it was observed that local interested parties and environmental NGOs played an active role in the EIA process. They had a degree of influence and impact on the decision-making (2.1 - 42). In addition, local communities were able to organise themselves and become to actively involved in the EIA process, even though there were no proper and formal channels for public participation in the EIA procedure at that time (2.1 - 37, 40).

In many cases, EIA was not undertaken at an early stage of project planning and the assessment of possible alternatives were not done in a timely matter (2.1 - 39). The SNCC project was declared by the Government as one of the nationally important projects. On one hand, the Government appeared determined to push the project forward, but on the other hand, the Government also wanted to show its willingness to protect the

environment under pressure from the public. As a result, the conclusions of EIA review were not taken into account seriously and the function of EIA was not brought fully into play. The attitude of local governments towards EIA and the proposed developments has had an important influence. In the case of the SNCC in Ilan County, there was a power struggle between the County Governor and the County Council. The County Government was controlled by the opposition party and relations between the Central and County Government were not smooth. While implementing the EIA system, confusion has arisen when some issues have become social and quasi-political problems due to the involvement of political and economic interests (1.2 - 7).

The attitudes of both the proponents and opposition groups towards EIA are often not ideal. Some people misunderstand the meaning of public participation and regard this activity as an opportunity to object to proposed projects without any foundation. Some of the proponents conduct EIA simply to fulfil the formal requirements for a planning application rather than to seek optimal options. The true value of public participation, which is to build up mutual understanding on the basis of a full exchange of information and views, has not yet been reached. From many EIA cases, e.g. SNCC, it can be seen that the priority of economic development is higher than that of environmental protection in Taiwan (2.1 - 36). This concept exists among officials in high levels of government (2.1 - 38). Moreover, most of the authorities have their own vested interests and their understanding of EIA may not be the same as the EPA. There are still criticisms over the poor quality of EIAs (1.2 - 5).

In the case of the SNCC in Ilan, the County Government even hired a third party to investigate the EIA report. The possible reasons which resulted in this shortcoming are as follows: i) The scoping meeting was inadequate, ii) There was poor coordination and communication between the proponent and the hired consultants, and iii) A further problem was lack of baseline environmental data. These shortcomings led to mistakes in the EIS of the SNCC. This in fact caused delay in EIA review. Project proponents have to

carry out a baseline environmental survey themselves or by hiring consultants, because the information provided by the relevant agencies/organisations is not sufficient. Arguments arise as the time for a baseline environmental survey is limited and the survey may be not comprehensive or detailed enough. Although the Environmental Quality Database is under development by the EPA, the project is still at its early stage (2.1 - 48).

Presently, a study of regional carrying capacity is not conducted before the design of industrial parks or regional planning. The Government does not have a process to finance this kind of pre-plan study. Partly, because there is lack of formal requirement, none of the government agencies would accept the responsibility to carry out this study. In the case of Yunlin Industrial Park, no formal study of regional carrying capacity was conducted beforehand, although the concept of integrated pollution control was incorporated in some degree. Furthermore, owing to lack of an integral and accurate environmental database, the accuracy of the results was questionable. There is no legal basis by which integrated pollution control can be enforced. No comprehensive assessment (SEA) had been undertaken before the Six-Year National Development Plan was proposed, due to lack of comprehensive environmental database, time, budget and formal requirements (2.1 - 43).

Resource Availability

Since 1987, the EPA has organised various EIA training programmes for officials charged with EIA cases in the responsible agencies (2.1 - 45). These courses have been held on a regular basis, to strengthen the EIA knowledge and experience of government officials. Nevertheless, the participants of the EIA training programmes organised by the EPA are all from the environmental protection authorities, authorised authorities and state-owned companies. Private sector and environmental consultants have no chance to participate in these courses to improve their EIA capabilities. The technology of GIS has been used by the EPA in establishing the Environmental Quality Database. The information generated

is intended to feedback into the EIA review process. The Government also applies GIS in the development of the National Territory Information System (2.1 - 49).

No EIA Tracking System has been set up to monitor, record and report the status of EIA cases. The collection of EISs by the EPA is not completed. No central EIS database has been established (2.1 - 50). Currently, the EPA just keeps the EISs reviewed by themselves. The copies of EISs reviewed by local governments are not sent to the EPA for monitoring purposes. There is no Consultant Registration System in place, which might have positive effects on promoting the quality and capability of private consultants (2.1 - 46). The EPA sets up a database of consultants for use by project proponents as reference.

International Interactions

Owing to the unique political status of Taiwan in the international arena and its strong economic growth, no international assistance, in terms of financial and technical supports, has ever been made available to help the development of the indigenous EIA system (1.2 - 10). At the current stage, the only possible influence, from the extra-national interactions, on the national EIA practice are international conventions, pressure and criticisms on natural conservation, and global environmental issues (2.1 - 57), but this influence is not yet manifest.

4.11.2 RECOMMENDATIONS FOR IMPROVEMENT OF THE EIA SYSTEM

Environmental Policies, Regulations and Guidelines

The preparation and revision of relevant EIA bylaws, technical guidelines for various types of development and a list of well defined screening criteria, need to be completed as soon as possible. Guidelines for carrying out various steps of the EIA procedure, e.g. scoping and public consultation, as well as appeals and dispute settlement, should be

available in order to provide guidance to all participants. The scale of the area in which more than two projects subjected to EIA are to be located, should be clearly defined either in the EIA Law or the relevant guidelines. The assessment of "no-action alternative" should be made mandatory and incorporated in the provisions of the EIA Law. The legal basis for appeals and dispute settlement should be incorporated in the EIA Law. The requirement for conducting EIA of governmental policies (SEA) is stipulated in the EIA Law. More effort should be dedicated by the Government to enable this requirement to become applicable in the near future. Also, relevant regulations and guidelines should be revised to incorporate SEA in the formulation of local/regional plans.

Environmental Administrative Framework

In order that the work of environmental protection can be carried out properly, it is important to form a consensus among the various authorities within the Government, or at least the EPA should have the same standing as other Ministries. This can be improved by upgrading the status of the EPA to the Ministry of Environmental Protection. In addition, it is suggested that the Environmental Protection Committee of the Executive Yuan should be reinstated. The functions of the Environmental Protection Committee should be strengthened, not only to coordinate and evaluate the implementation of environmental policies and plans, but also act as a referee to resolve dispute settlement among various agencies and deal with appeals relating to EIA decisions. The man-power and budget for environmental protection should be strengthened, especially at local level. This would improve the effectiveness of environmental protection work, including EIA implementation.

EIA Procedure

A number of recommendations can be made to improve the completeness and comprehensiveness of the current EIA procedure. A formal screening meeting should be incorporated into the early stage of the EIA procedure, in which consultation should take place between the project proponent, the EPA and the authorised authority. If the local

people, interested parties or relevant agencies are not satisfied with the decision on the IEE, they should have rights to appeal to the Administrative Court regarding the legal process of EIA, or to the Environmental Protection Committee for the decision (project proceed without full EIA). Similarly, if the proponent dose not accept the decision (rejection of the proposed project or full EIA required) given by the authorised authority, after the review of the IEE, appeals should be made either to the Environmental Protection Committee regarding the adverse decision or to the Administrative Court regarding the legal process of EIA. After submission of the draft EIS to the authorised authority, the draft EIS should also be displayed at a suitable public place for public scrutiny prior to the public hearing. The public and interested parties can then make their representations. A formal channel should be provided for the public and interested parties to obtain copies of the EIS. After the review of the EIS is completed, a period of time for appeals should be given to the proponent if he is against the rejection of the proposed project, or to the public, interested parties and relevant agencies if they are against the decision on project proceed.

Role of Actors Involved

In "Guidelines for Organising EIA Review Committee of the EPA" it is stipulated that the local people may be invited to attend the meeting of the preliminary review group, if the EPA considers that it is necessary. This should be changed to become a mandatory requirement. Moreover, the EIA Review Committee of the EPA does not include a representative of the local people or local government. In the meeting of the EIA Review Committee, the local people have no chance to express their views at the final point of the decision-making process. The "Guidelines" should be revised to include representatives of the local communities and the appropriate local government to become members of the EIA Review Committee.

The involvement of an independent judicial agency and a superordinate body acts as referee in handling appeals and dispute settlement is considered as an important step

forward, through which possible confrontation and disputes may be avoided or resolved in a fairly objective way. In addition, public pressure can combine with the function of the judicial agency to form a more effective monitoring force to oversee the implementation of the EIA system. It is, thus, suggested that the EIA Law should be revised to incorporate channels for appeals and dispute settlement. For public sector projects, disputes among various departments should be settled by the Environmental Protection Committee of the Executive Yuan (if the Committee can be reinstated). If a special case occurred, (e.g. SNCC in Ilan where the local government was not satisfied with the clarification given by relevant central departments), the party concerned should appeal to a judicial agency, the Administrative Court, for directions relating to the legal problems of the EIA process. For private sector projects, appeals regarding the legal problems of the EIA procedure should be made to the Administrative Court. Appeals regarding the adverse decisions on EIA cases should be dealt with by the Environmental Protection Committee of the Executive Yuan.

EIA Compliance Monitoring and Enforcement

The relevant guidelines and provisions for EIA compliance monitoring should be revised to provide formal channels for the public, interested groups and relevant agencies to participate in this exercise. Also, the results of EIA monitoring should be made available for public scrutiny. Channels should be provided for the public and interested groups to obtain copies of these results.

EIA Implementation in Practice

The attitude of some officials at the high level of the Government towards EIA needs to be changed. It is recognised that administrative prestige exists among various departments. The function of EIA should not be regarded as a decorative tool, e.g. in the case of SNCC, but as a useful tool for decision-making. Since for many projects in the past EIA had only been started after the projects were decided, EIA should begin at the early stage of project planning. Alternatives, in terms of project sites, techniques etc.,

should be assessed concurrently with the EIA study. Coordination among various departments of the Governments needs to be improved, especially between the environmental protection authorities and authorised authorities. Equally important, coordination between proponents and hired consultants also needs to be strengthened to improve the quality of EISs. It is important to enhance the environmental awareness and education of the public in order to build up a correct understanding and concept of environmental protection, including EIA. A formal periodic auditing of the EIA system should be carried out by the EPA in order to improve EIA effectiveness and performance.

Resource Availability

The EIA training programmes organised by the EPA should be made available to private sector and environmental consultants. This will improve and strengthen the indigenous EIA capabilities. The EPA could reward annual excellence awards to encourage the proponents or consultants who have done good jobs in implementing EIA or preparing good quality of EISs. It is suggested that an EIA Tracking System to monitor the status of EIA implementation should be established. The EPA should also set up a central EIS database for monitoring purposes and for the publicity of EISs to the public and researchers. The establishment of the Environmental Quality Database needs to be speeded up in order to support the implementation of the EIA system and national/regional planning. The development of the NTIS should also be completed as soon as possible. A pre-plan budgeting system is required to be introduced to sponsor the pre-plan study, e.g. study of regional carrying capacity and EIA of policies, plans and programmes (SEA). The government should formally allocate the duty of carrying out this work to the responsible authorities.

CHAPTER 5.

ENVIRONMENTAL IMPACT ASSESSMENT IN MALAYSIA

5.1 INTRODUCTION

An awareness of environmental protection was demonstrated in Malaysia as early as the 1920's with the Mining Enactment 1929 (FMS. Cap.147), although environmental consideration was only a minor part of the provisions. More comprehensive regulations relating to environmental management were introduced in the 1960's and 1970's. Malaysia has been recognised as one of the newly industrialised nations in the South-East Asian region, as economic growth has increased rapidly over the past two decades. However, as the result of this achievement, environmental quality has also deteriorated rapidly, due to industrialisation, urbanisation, expansion of population and intensive exploitation of natural resources.

The Malaysian Government is aware of this situation and has adopted a "preventive approach" towards environmental management since the mid 1970's (*Harun 1992a*). It was noticeable that two of the most important steps taken by Malaysian Government were the introduction of the Environmental Quality Act 1974 (EQA 1974) (*Government of Malaysia 1974*) and the subsequent creation of the Department of Environment (DOE) in 1976. Environmental management in Malaysia took on a formalised and structured form (*Malaysia DOE 1992a*). The EQA of 1974 which relates to the prevention, abatement, control of pollution and enhancement of the environment came into force in 1975. Under this Act, 15 sets of Regulations and Orders have been introduced and enforced to date.

Malaysian Environmental Policies were clearly documented in the Third Malaysian Plan (M.P.) (*Government of Malaysia 1976*) and the National Development Policy of Second Outline Perspective Plan (1991-2000) (*Government of Malaysia 1991a*). The Environmental Policy objectives were continuously reinforced through the Fifth and Sixth M.P. (*Government of Malaysia 1986, 1991b*) To achieve the environmental policy objectives, the DOE has adopted a three-pronged strategy based on: i. pollution control and prevention, ii. the integration of environmental factors in project planning and implementation, iii. environmental inputs into resource and regional development planning (*Malaysia DOE 1992b*).

The importance of EIA was clearly stated in the national environmental policy objectives which were embraced in the Third Malaysian Plan (M.P.) (1976-1980) and reinforced in the Fifth M.P. (1986-1990) (*Goh 1988*). One of the objectives was " ... to incorporate an environmental dimension in project planning and implementation" *inter alia* by determining "... the implication of the proposed projects and the costs of the required environmental mitigation measures through the conduct of EIA studies".

The source of information used in this chapter was from the document reviews and outcomes of the interviews and discussions undertaken during the field trip to the Malaysian Department of Environment (DOE) in November 1993. Prior to the field work, a number of papers and documents relating to EIA in Malaysia were reviewed and a genuine questionnaire was prepared. During the two week period of field work, a number of interviews and discussions were carried out with governmental and non-governmental participants, including the staff in the EIA Section of the DOE, the Public Work Department, and two environmental consultants. Two EIA Briefings for the proposed projects organised by the EIA Technical Committee were attended. A site visit carried out by the EIA Section was also participated. Visits were made to the National Institute of Public Administration Malaysia and one of the DOE State Offices. The views discussed

and described in this chapter are the results of document reviews and interviews, and may not represent the official views of the DOE.

5.2 EVOLUTION OF THE EIA SYSTEM

The recognition of EIA as a potentially useful tool in the project decision-making process was seen in the Third M.P. This was reiterated in the Sixth M.P.. One of the major programmes of the Sixth M.P. is "to enforce fully the EIA requirement for projects which have the potential of damaging of the environment".

Efforts have been made to develop the EIA system since the mid-seventies. An Ad-hoc Panel was set up under the Division of Environment to review the proposed EIA procedure along with its implementation plan. An approval for the proposal was given by the Government in principle, which was subject to the preparation of a set of guidelines. A draft handbook on EIA procedure and guidelines was prepared and approved by the Environmental Quality Council (EQC) established under the EQA of 1974 (*Kalsom 1991*). The EIA procedure had been implemented through administrative arrangements in the absence of statutory provisions since 1979 (*Harun 1992b*). It was not until 1988 that EIA submission for specific activities became a mandatory requirement through the 1985 amendment to the EQA of 1974, which provides a legal basis for EIA implementation (*Government of Malaysia 1985*). The definition of EIA in Malaysian context is that " EIA is a study to identify, predict, evaluate and communicate information about the impacts on the environment of a proposed project prior to project approval and implementation" (*Malaysia DOE 1990*). The objectives of EIA in Malaysian context are (*Malaysia DOE 1987*):

i. to examine and select the best from the project options available,
ii. to identify and incorporate into the project plan appropriate abatement and mitigating measures,

iii. to predict significant residual environmental impacts,

iv. to determine the significant residual environmental impacts,

v. to identify the environmental costs and benefits of the project to the community.

Boyle (1993) argued that "although Malaysia initiated its EIA programme in 1979, little substantive implementation occurred until the Environmental Quality (Prescribed Activities) Order came into effect in 1988". Before 1988, the DOE did little to promote EIA application and environmental studies of various forms were usually prepared as an adjunct to large, foreign founded feasibility studies. As a consequence, little expertise was developed among consultants or proponents for conducting EIA studies, and by the responsible authorities for the administration and implementation of the EIA system.

5.3 GOVERNMENTAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT AND PROTECTION

5.3.1 CENTRAL GOVERNMENT

5.3.1.1 Environmental Quality Council (EQC)

The EQC was established in 1977, under Section 4 (1) of the Environmental Quality Act of 1974 (*Malaysia DOE 1992b*). The EQC has two functions; firstly to advise the Minister of Science, Technology and Environment (MSTE) on matters pertaining to the EQA of 1974 and secondly to advise the Minister on any matter referred to it by the Minister. The chairman of the EQC is appointed by the MSTE. The members of the EQC consist of representatives from various organisations, including central/local governments, industries, academia and non-governmental organisations (NGOs). They are as follows (*Malaysia DOE 1991*):

- 7 representatives from the relevant Ministries

- 2 representatives from State Governments (Sabah and Sarawak)
- 4 representatives from industries (petroleum, oil palm, rubber and manufacture)
- 1 representative from academia (Universit Kebangsaan Malaysia)
- 2 representatives from NGOs (Environmental Protection Society of Malaysia and Malaysian Professional Centre)

The EQC has duties to provide guidance and supervision to the DOE in the formulation of policies and strategies relating to environmental management and protection. In 1992, the Sub-Committee on EIA was formed under the EQC responsible for promoting EIA and resolving the operational and legal problems of EIA.

5.3.1.2 Department of Environment (DOE)

The DOE was established in 1976. The DOE is headed by a Director General of Environmental Quality who is appointed by the MSTE, under Section 3 (1) of the EQA of 1974. The administrative framework of the DOE was re-organised in January 1991. Currently, the DOE is structured into four functional divisions at the Headquarters and 10 DOE State Offices. The functions of the four Divisions are briefly described as follows:

i. Administration Division: responsible for finance, staffing, training as well as productivity and quality management.
ii. Control Division : to plan, review and coordinate the enforcement and monitoring conducted by the DOE State Offices.
iii. Prevention Division: a duty to ensure that environmental consideration is incorporated at all stages of developments or project planning in order to prevent the deterioration of environmental quality. The Division consists of the EIA Section, the Environmental Input to Development Section and the Centre of Investment at Malaysian Industry Development Authority (MIDA). The EIA Section is further divided into six units. Five units are responsible for implementing EIA system and preliminary review of EIA reports. The 6th unit coordinates the compliance monitoring of conditions of EIA approval. Since 1990, a senior officer of the DOE

has been placed at the Centre of Investment at MIDA to advise investors on environmental requirements, including EIA.

iv. Development Division: responsible for new development formulation, environmental education, international cooperation and electronic data processing.

The Federal DOE is the core agency with a specific mandate for promoting environmental protection and management. Its authority is limited by the federal nature of the country in which the States have jurisdiction over most natural resources and their development (*Ho 1990*). The DOE has been most successful in the control of industrial pollution since industry is an area of federal jurisdiction. The organisational structure of the DOE is shown in **Figure 5.1**.

5.3.1.3 Other Parts of the Central Government

In addition to the DOE, the relevant authorities within the Central Government, such as the Public Work Department (PWD), Forestry Department, Wildlife Department etc., have important roles in environmental protection relating to their works. In order to achieve the goals of sustainable development, the integration of environmental considerations into the formation of sectional policies and programmes is essential. Key Ministries and agencies are encouraged to set up environmental units to deal with environmental affairs. For example, the Environmental Task Force of PWD established in 1993 is in charge of the following tasks:

i. safeguard the work of PWD in relation to environmental matters,

ii. act as a statutory consultee in the EIA process, which provides comments to the DOE on projects relating to infrastructure of roads, highways and water supply,

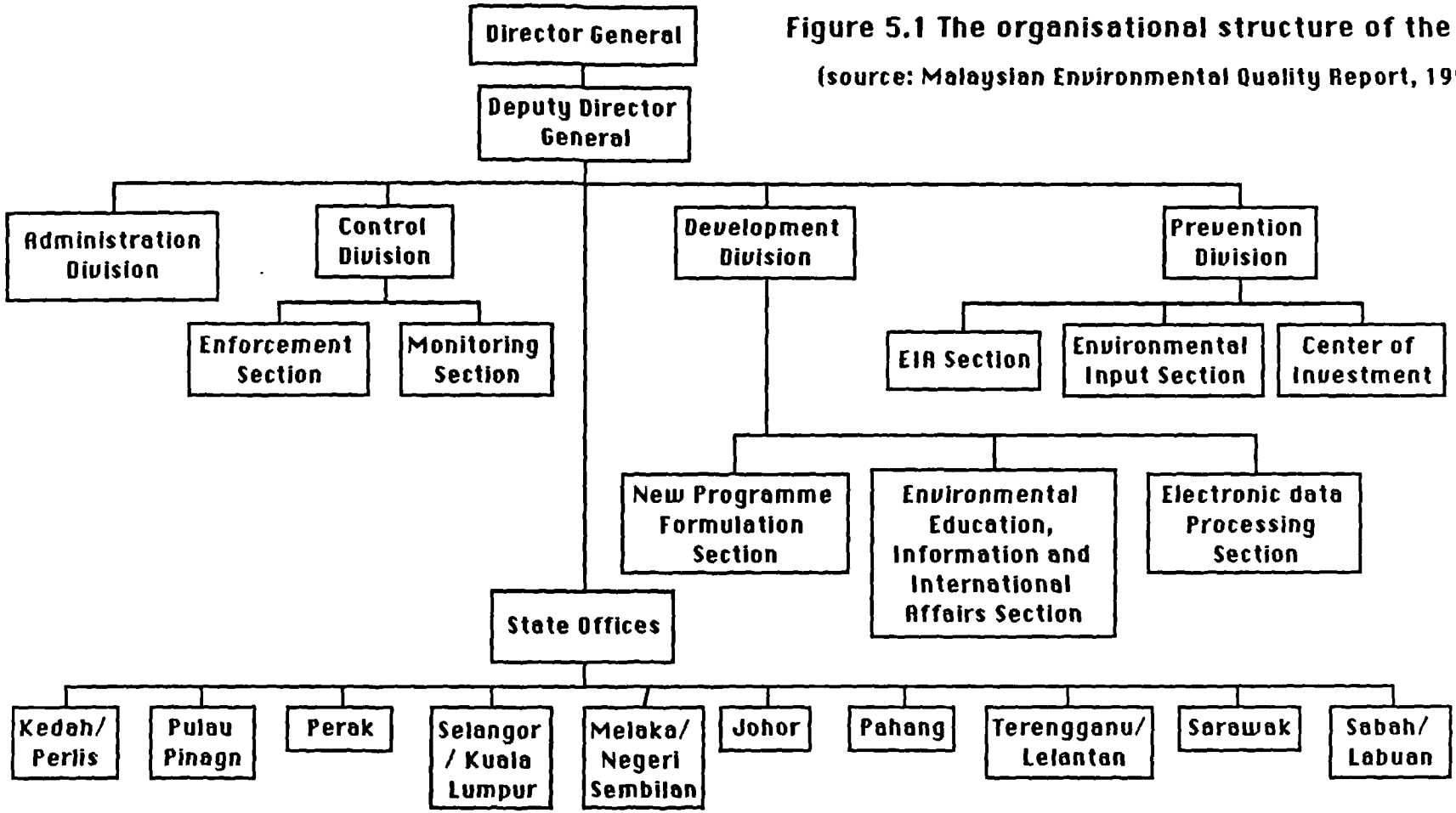


Figure 5.1 The organisational structure of the DOE

(source: Malaysian Environmental Quality Report, 1991)

iii. for PWD's projects (non-prescribed activity), the Task Force prepares Environmental Appraisals which focus on scoping of the projects and proposed mitigation measures. For PWD's projects (prescribed activity), the EIA reports of the proposed projects are firstly reviewed by the Task Force and then forwarded to the DOE. In this way, it can reduce the work load of DOE and also ensure that EIA reports are filtered by the Task Force beforehand,

iv. the Task Force also provides assistance to the other units or sections of PWD in relation to environmental issues.

5.3.2 LOCAL GOVERNMENT

5.3.2.1 State Government

Malaysia has a federal system of government which means that legislative and executive powers are divided between the Federal and State Governments. Utilisation of land and natural resources is under the jurisdiction of State Governments (*Nor 1991*). Currently, Malaysia is divided into 13 State Governments and 2 Royal Territories, Kuala Lumpur and Labuan. The EQA of 1974 is a federal legislation. The duty of State Government, in terms of EIA implementation, mainly is to ensure that EIA can be effectively enforced, particularly for projects subject to state control (*Kalsom 1991*).

5.3.2.2 DOE State Offices

After the reform of DOE in 1991, the 8 old DOE Regional Offices were replaced by 10 new DOE State Offices. Conducting the environmental quality monitoring, enforcement of the EQA, 1974 (Amendment) 1985 and the relevant regulations under the EQA, are the main tasks of the DOE State Offices. The activities of the DOE State Offices are: air, river and coastal water monitoring; enforcement; investigation of complaints; project

siting; appraisal of fuel burning equipment; environmental awareness and education programmes.

5.4 REGULATIONS AND GUIDELINES RELATING TO EIA

5.4.1 REGULATIONS RELATING TO EIA

The legal requirement for conducting EIA was provided in Section 34A to the EQA of 1974 (Amendment) 1985. The Amendments to the EQA of 1974, have empowered the MSTE to designating any activity which may have significant environmental impacts as a prescribed activity. Anyone intending to carry out any of the prescribed activities is required to conduct a study to assess the environmental impacts caused by the proposed project. The report of the study should be examined and approved by the Director General of Environmental Quality before the project is allowed to proceed. The Amendment EQA was gazetted in January of 1986.

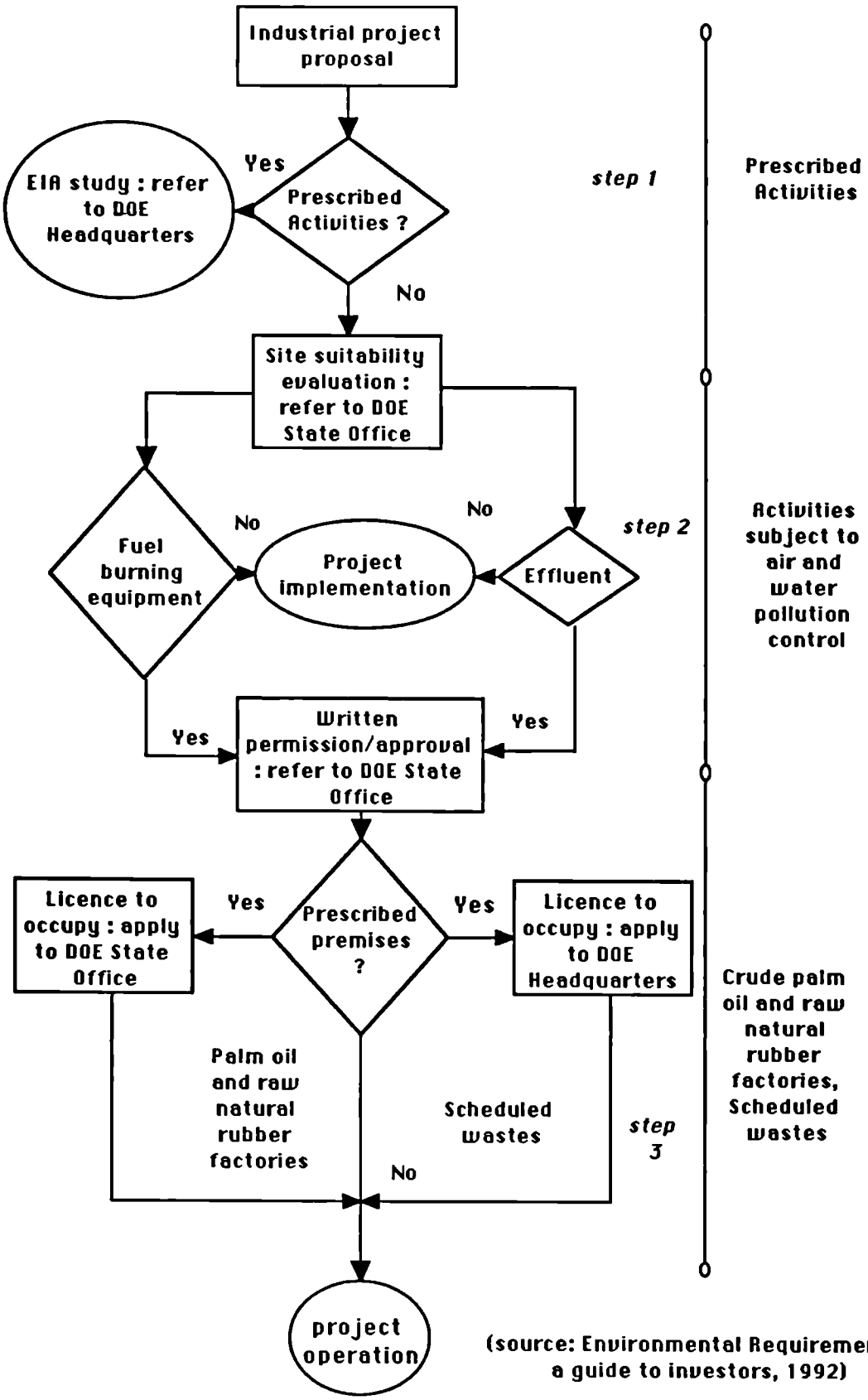
In 1987, the Environmental Quality (Prescribed Activities) Order (EQO 1987) was introduced which contained 19 categories of Prescribed Activities (*Government of Malaysia 1987*). These 19 categories of activities are sub-divided into a total of 70 activities. The 19 prescribed activities include: agriculture; airports; drainage and irrigation; land reclamation; fisheries; forestry; housing; industry; infrastructure; ports; mining; petroleum; power generation and transmission; quarries; railways; other transportation; resort and recreational development; waste treatment and disposal; and water supply. Many of the activities related to these 19 categories are defined in terms of project size (as area), capacity (quantum) while others are not defined by any unit of measure. The EQO of 1987 came into effect on 1st of April, 1988. This Order applies to new activities or extensions; activities approved prior to April 1st, 1988 were exempted.

In the Exclusive Economic Zone Act of 1984 (*Government of Malaysia 1984*) ,the definition of the Exclusive Economic Zone (EEZ) is an area beyond and adjacent to the territorial sea of Malaysia and extends to a distance of two hundred nautical miles from the baselines from which the breadth of the territorial sea is measured. If the proposed project is to be located within the EEZ, an EIA study needs to be carried out. An approval is required from the Director General of Environmental Quality before the proposed project can be implemented.

5.4.2 GUIDELINES FOR EIA

In 1987, the DOE launched an "EIA Handbook" for use as a general guide to project proponents and consultants (*Malaysia DOE 1987*), on EIA procedures to be implemented. In 1990, the booklet "EIA: Procedure and Requirements in Malaysia" was introduced by the DOE (*Malaysia DOE 1990*). It is provided without charge to project proponents, consultants, relevant agencies or interested parties. The "Environmental Requirements: A Guide to Investors" was introduced by the DOE in 1992 (*Malaysia DOE 1992c*). For industrial projects, several approvals are required from the Director General of Environmental Quality prior to the project implementation, according to the EQA of 1974. One of the requirements is the preparation of an EIA report if the proposed project is categorised as a Prescribed Activity. The EIA report should be submitted to the Director General of Environmental Quality for review before the proposed project can be considered for approval by the relevant Federal or State authorities. The project cannot proceed unless the approval of the EIA report is granted. The application procedure to satisfy environmental requirements is shown in **Figure 5.2**. For potentially "hazardous" type of industries, the proponent may be required to submit a Risk Analysis to the DOE as part of the site consideration. Hazardous industry is defined as any industry or installation which has the potential for causing injury, death and damage to property or the environment.

Figure 5.2 The application procedure to satisfy environmental requirements in Malaysia



(source: Environmental Requirements: a guide to investors, 1992)

The DOE intend to prepare EIA Technical Guidelines for the various types of Prescribed Activity. By early 1994, four guidelines were being prepared, including Infrastructure and Development of Industry, Petrochemical Development, Resort and Recreational Development and Highway and Road Projects (under preparation by the PWD). In addition, the BERITA EIA (EIA Newsletter) has been published bi-monthly by the DOE, which reports the status of EIA implementation since 1992.

5.5 EIA PROCEDURE

The DOE is the leading authority responsible for the administration and enforcement of the EIA system. However, the tasks of EIA implementation are mostly delegated to other federal or state agencies who are given the responsibility to ensure that prescribed activities undergo EIA for submission to the DOE for approval (*Ho 1990*). Thus, inter-agency cooperation is vital for the success in the EIA implementation. The Malaysian EIA procedure consists of three major steps namely: Preliminary Assessment, Detailed Assessment and Review.

The EIA system is designed to follow the integrated project planning concept. The idea is that the Preliminary Assessment should be conducted in parallel with the pre-feasibility study for the proposed project, if the need of conducting EIA is determined at the stage of project identification. Similarly, if a Detailed Assessment is required, it is conducted as a part of the feasibility study for the proposed project. The DOE and the project approving authority should review the pre-feasibility study and feasibility study in conjunction with the EIA reports before the final decision is made. In addition, an environmental monitoring programme should be carried out throughout the phases of project construction and operation. The flow chart for the integrated project planning concept is shown in **Figure 5.3** (*Malaysia DOE 1990*).

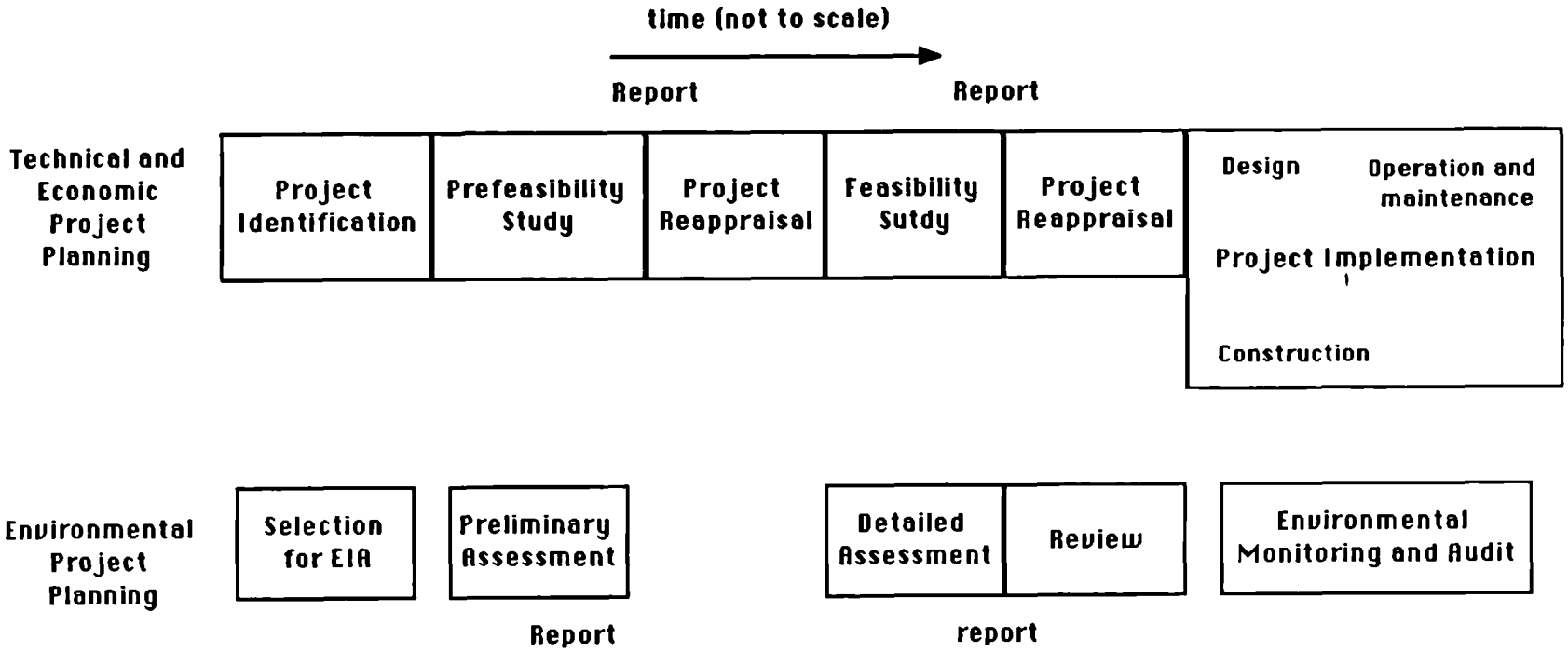


Figure 5.3 Integrated project planning concept

(source: EIA: procedure and requirements in Malaysia, 1990)

5.5.1 PRELIMINARY ASSESSMENT

The Preliminary Assessment is an initial assessment of the impacts attributable to the Prescribed Activities. The objectives of this assessment are: to examine and select from the project options available; to identify and incorporate into the project plan appropriate abatement and mitigation measures; and to identify significant residual environmental impacts.

For any proposed project falling into the scope of Prescribed Activities, a Preliminary Assessment needs to be conducted. At the stage of project identification, project initiators should consult with the EIA Section of the DOE on whether or not the Preliminary Assessment is required, if any doubt arises. The Preliminary Assessment is normally carried out "in-house" or by consultants. Some form of public participation is mandatory during the preparation of Preliminary Assessment Report. This may simply be public opinion sampling, or may involve public meetings, workshops or meetings with citizen committees. The assessor should keep close contact with the relevant responsible agencies. The results of the assessment are presented as a report for examination and approval by the project approving authority and the Director General of Environmental Quality.

5.5.2 DETAILED ASSESSMENT

For proposed projects with significant or potentially significant residual environmental impacts identified during the Preliminary Assessment, the Detailed Assessment will be required. In addition, the Detailed Assessment may be carried out to address potentially significant impacts which have been identified as "unknown" or " require clarification" (*Ho 1988*). The objectives of the Detailed Assessment are: to describe the significant residual environmental impacts predicted from the final project plan; to specify mitigation and abatement measures in the final project plan; and to identify the environmental costs and benefits of the project to the community.

Once the need of conducting Detailed Assessment is confirmed, the assessor should consult with the Secretariat to the Review Panel to set out the terms of reference (TOR) for the study of the Detailed Assessment, which is approved by the Review Panel. The Detailed Assessment should be conducted in accordance with the TOR. During the preparation of Detailed Assessment Reports, public participation is also important and mandatory, The form of public participation should be discussed during the formation of TOR for the Detailed Assessment.

5.5.3 REVIEW

Preliminary Assessment Reports are reviewed internally by the EIA Technical Committee of the DOE. Comments on the reports are sought from the relevant governmental agencies. Briefings on the Preliminary Assessment Reports may be held under the requirement of the EIA Technical Committee. Recommendations, either the acceptability of the reports or requirement of conducting Detailed Assessment, will then be made by the EIA Technical Committee to the Director General of Environmental Quality for the final decision. Normally, the time limit for the review of Preliminary Assessment Reports is one month.

The Detailed Assessment Reports are examined by an Ad-hoc Review Panel appointed by the Direct General of Environmental Quality. Having received the Detailed Assessment Report, the Secretariat to the Review Panel puts up the notices to inform the public. The Detailed Assessment Reports are also displayed at all DOE offices, as well as public and university libraries for public comments. The project initiator should notify the Review Panel where the public can obtain copies of the Detailed Assessment Report and the cost of each copy. Copies of the report will also be sent to the project approving authority and relevant agencies for their consideration. However, initiators may request that, in the public interest, such reports not be made public and that the project not be subject to public scrutiny. A decision on this matter is made by the National Development Planning

Committee. Representations and comments on the report raised by the public and relevant agencies should be made in written form and sent to the Review Panel within 28 days of the notice. These representations and comments will be appended to the Detailed Assessment Review produced by the Review Panel. The Detailed Assessment Review is subject to public scrutiny. The time period for reviewing the Detailed Assessment Report is two months.

Since 1993, the Director General of Environmental Quality has delegated the power of reviewing Preliminary Assessment Reports to 5 DOE State Offices, including Sarawak, Johor, Penang, Perak and Selangor. However, the Detailed Assessment Reports are still reviewed by the Ad-hoc Review Panel at the Headquarters of the DOE. The flow chart for the Malaysian EIA procedure is shown in **Figure 5.4** (*Malaysia DOE 1990*).

5.5.4 APPEAL

Currently, there are no formal channels for appeals and settlement of disputes which occur during the implementation of EIA. According to the Part V to the EQA of 1974, there should be an Appeal Board to deal with appeals, including appeals against any decision of the Director General of Environmental Quality under Section 34A to the EQA of 1974. However, the Appeal Board has not yet been set up. At present, if the project initiators disagree with the decisions given by the Director General of Environmental Quality, they can appeal to the DOE. The cases will be reviewed again by the EIA Technical Committee or the Review Panel, depending on at which stage of the EIA procedure the project is. Up to 1991, the DOE received 6 appeals regarding the conditions imposed on EIA approvals. These cases were reviewed accordingly. In one of the cases, additional conditions were imposed to enhance protection of the environment.

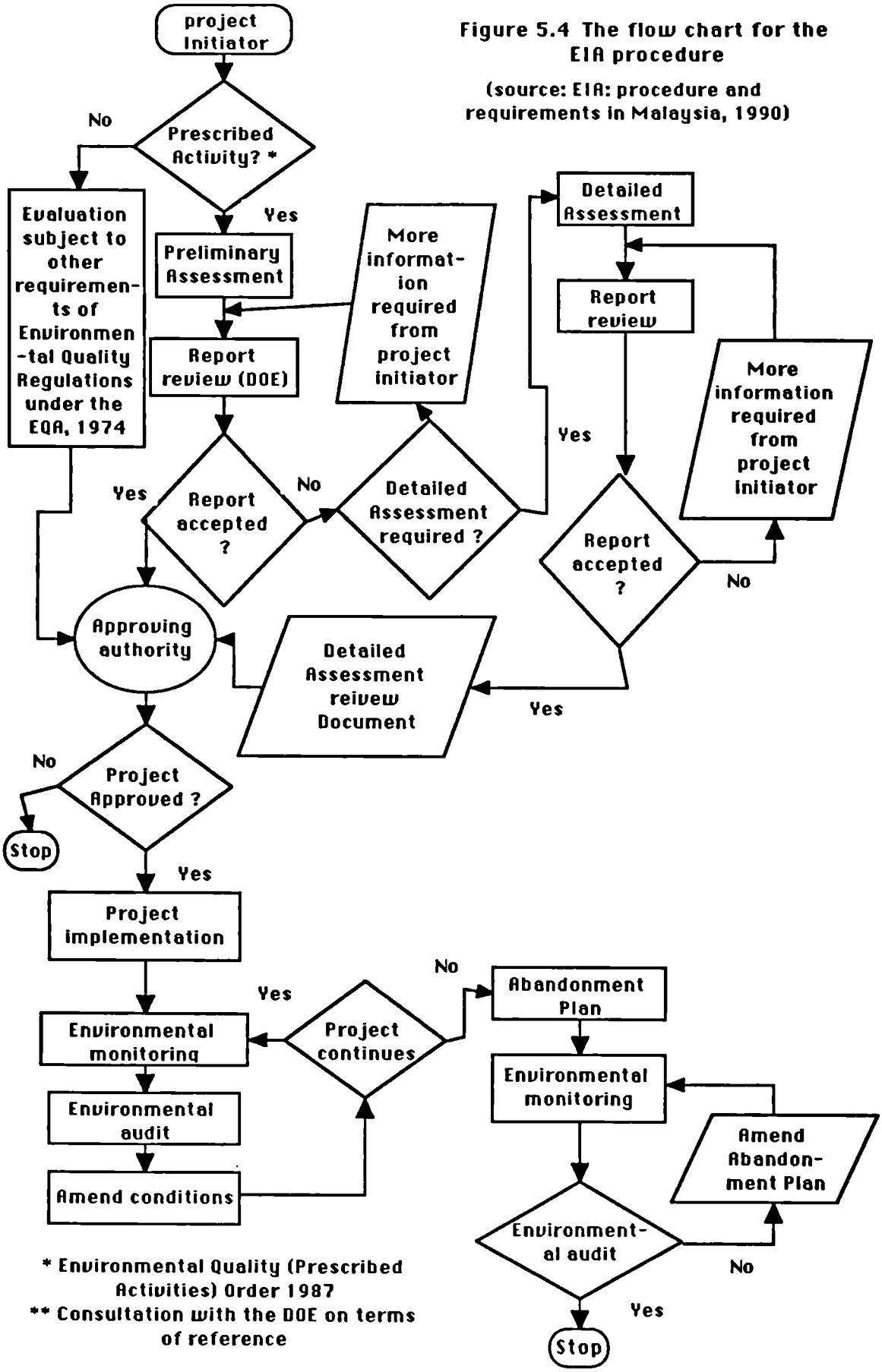


Figure 5.4 The flow chart for the EIA procedure

(source: EIA: procedure and requirements in Malaysia, 1990)

5.6. ROLE OF ACTORS INVOLVED IN THE EIA PROCEDURE

The role of actors involved in the EIA procedure are described as follows:

i. Project Initiator: is the project proponent who has the full responsibility for the EIA of the proposed project.

ii. Assessor: is the one who conducts or coordinates the study of EIA, and is responsible to the project initiator.

iii. Project approving authority: is the governmental agency which has power to decide whether or not the proposed project should proceed. The approving authorities are (*Malaysia DOE 1990*): the National Development Planning Committee for Federal Government sponsored projects; the Regional Development Authorities; the State Planning Authorities for State Government sponsored projects; and the Ministry of Trade and Industry or Malaysian Industry Development Authority for industrial projects.

iv. Director General of Environmental Quality: is responsible for approving or rejecting EIA reports.

v. Director of Prevention Division: is the chairman of the EIA Technical Committee.

vi. Head of EIA Section: serves as the Secretariat to the ad-hoc Review Panel.

vii. EIA Report Processing Desk Officers: are staff in the EIA Section responsible for preparing the review briefs of Preliminary Assessment Reports which will be tabled at the meetings of the EIA Technical Committee.

viii. EIA Technical Committee: consists of selected staff in the EIA Section and is chaired by the Director of Prevention Division. Its main task is to review Preliminary Assessment Reports.

ix. Ad-hoc Review Panel: is appointed and chaired by the Director General of Environmental Quality to review Detailed Assessment Reports. The Panel is organised on an ad-hoc basis especially for a particular project. The DOE maintains a list of experts who may be called upon to sit as members of the Panel established. Normally, the Review Panel consists of about 10 subject experts from Universities

or research institutes, 4 to 5 representatives from NGOs and representatives from the relevant governmental authorities, including the appropriate State Government.

x. One-Stop Agency for EIA: in 1992, two meetings were held by the Modernisation and Man-power Planning Unit under the Prime Minister Department, to discuss improving the efficiency of processing EIA reports. One of the conclusions was to establish an One-Stop Agency for EIA which consisted of representatives from various key agencies relating to EIA implementation, which would be called upon to deal with problematic or critical cases of Preliminary Assessment forwarded by the EIA Technical Committee. In addition, the Agency has tasks of coordinating all the resolutions and upgrading EIA procedure to accelerate EIA approval, and the formulation of working manual standard and EIA approval conditions for every project.

xi. DOE State Offices: generally speaking, the main duty of the DOE State Offices relating to EIA is to ensure that the EIA approvals are enforced effectively. The Enforcement Officers of the DOE State Offices have to carry this work on a regular basis. For the 5 aforementioned States in **Section 5.5.3**, the DOE State Offices have also organised the EIA Technical Committees to review Preliminary Assessment Reports. The Committee comprises the staff from various Sections of the State Government, and is chaired by the Director of the DOE State Office.

xii. Key relevant agencies: act as statutory consultees to provide comments on the EIA reports. They may also be invited to sit in the Review Panel to examine Detailed Assessment Reports.

xiii. The public and interested parties: are encouraged to comment on the Detailed Assessment Reports. Some representatives of the NGOs may be invited to participate the Review Panel.

5.7. EIA COMPLIANCE MONITORING AND ENFORCEMENT

5.7.1 LEGAL BASIS

According to the Subsection 7 of Section 34A to the EQA of 1974, the project initiator has to provide evidence to prove that the conditions attached to the EIA approval have been complied with, in the course of project implementation, i.e. to show that the measures to be taken to mitigate or control the adverse impacts on the environment are being incorporated in the design, construction and operation of the Prescribed Activity. For anyone contravening these requirements, the Act provides for a fine of up to 10,000 ringgit (equivalent to 1993 £ 2560) and/or imprisonment for up to two years, and a further fine of 1,000 ringgit (equivalent to 1993 £ 256) for every day that the offence is continued. Monitoring the compliance of conditions imposed on EIA approvals and other environmental regulatory requirements, and monitoring the impacts of project implementation need to be carried out by the DOE and by project initiators respectively. These are essential to the success of the EIA system.

The task of project monitoring to ensure the compliance with conditions of EIA approvals is jointly shared by the DOE and other project supervising agencies (*Sohaili & Harun 1992*). In the DOE, EIA monitoring and compliance used to be a part of the functions of the Prevention Division, but the work shifted to the Control Division from October, 1993. Currently, the Control Division is responsible for coordinating and planning the enforcement and monitoring programmes which are to be executed by the DOE State Offices on the ground.

5.7.2 CURRENT STATUS OF EIA COMPLIANCE MONITORING AND ENFORCEMENT

Generally, the project initiators will be required to carry out monitoring programmes while implementing proposed projects if this is found necessary during the EIA review. Criteria adopted by the DOE in deciding on whether or not monitoring is required, are as follows (*Malaysia DOE 1987*):

- The impacts and mitigating measures are not well understood.
- Project construction and operation methods are not clearly described, or are experimental, or are subject to change.
- The potential impacts on the environment or natural resources are controversial.
- Project scheduling is subject to change such that the impacts could be serious.

In practice, monitoring programmes have not been required for every project subject to EIA approval. By 1992, the DOE only received a total of 20 monitoring programmes from project initiators. With respect to monitoring of EIA compliance, the DOE mainly focuses on projects which have undertaken the Detailed Assessment procedure, and projects which have been controversial and raised a lot of public interest. The DOE has carried out a programme to monitor the status of implementation of the EIA projects approved. For example, in 1992 71% of the 244 project initiators responded to the requirements of the programme. Among these respondents, the majority (73%) were completed/operational, or at various stages of construction, with the remaining 27% either postponed or terminated (*Malaysia DOE 1992b*). Boyle (1993) argued that "although penalties/sanctions are stipulated in the EQA of 1974, no one has been taken to court as yet".

5.8 EIA REPORTS AND RELEVANT DOCUMENTS

Table 5.1 lists the types of EIA related documents and producers of these documents according to the time schedule of various stages of the EIA procedure. From 1988 to October 1993, the DOE received a total of 748 EIA reports. The majority of the reports were Preliminary Assessment Reports. Only 7 reports were Detailed Assessment Reports and 42 of the 748 EIA reports were Risk Assessment. Among the 698 reports settled by the DOE, the approval rate was about 80% and the percentage of rejections and withdrawals were 17.5% and 2.5% respectively (*Malaysia DOE 1993a*).

Table 5.2 summarises the current status of EIA reports. **Table 5.3** shows the number of EIA reports in relation to the types of prescribed activities. It may be seen that the top three types of developments are recreational projects 123 (16.4%), infrastructure 118 (15.7%) and quarry 97 (12.9%).

The geographical distribution of EIA cases across Malaysia is shown in **Figure 5.5**. EIA cases in the States of Selangor and Johor account about 39.4% of the total EIA cases by October 1993. According to the assessment on the quality of EIA reports by the DOE in 1992, 11% of the EIA reports received were graded as good with no additional information required. 66% of the EIA reports were judged as satisfactory and 23% of the reports were poor and did not satisfy the requirements.

Table 5.1 The types of EIA related documents

EIA Procedure	Preliminary Assessment Report (PAR)	Review brief of PAR	Detailed Assessment Brief	Detailed Assessment Report	Detailed Assessment Review
Preliminary Assessment	* prepared by the project initiators				
Review of Preliminary Assessment	* reviewed by the EIA Technical Committee	* prepared by the EIA Desk Officers, which is to be tabled at the meetings of the EIA Technical Committee			
Detailed Assessment			* issued by the Review Panel to the project initiators	* prepared by the project initiators	
Review of Detailed Assessment				* reviewed by the Review Panel	* prepared by the Review Panel after reviewing the Detailed Assessment Report

Table 5.2 The status of EIA reports under review as in October 1993

Year Received	No. of report received	No. of reports proceed			No. of reports under review
		Approved	Rejected	Withdrawn	
1988	11	9	2	0	0
1989	35	21	13	1	0
1990	112	75	36	1	0
1991	76	128	39	9	0
1992	195	173	17	5	0
1993 (31/10/93)	219	149	15	5	50
Total	**748**	**555**	**122**	**21**	**50**

Table 5.3 The number of EIA reports processed by the DOE from April 1988 to October 1993

No.	Activity (a)	Number and type of reports received																		Total
		1988			1989			1990			1991			1992			1993			
		PA	DA	RA	PA	DA	RA	PA	DA	RA	PA	DA	RA	PA	DA	RA	PA	DA	RA	
1	Agriculture				1			0			3			3			3			10
2	Airport																	1		1
3	Drainage	1			1						3			5			3			13
4	Land reclamation				2			2			3			7			3			17
5	Fishery										1			1						2
6	Forestry							2			8		1	4						15
7	Housing	1			3			9			21			26			28			88
8	Industry			1	7	1	1	13	1	2	17		7	17		6	17		4	94
9	Infrastructure				1			17			39	1		33			27			118
10	Port				1			2									3		1	7
11	Mining	1			1			7			1			2			1			13
12	Petroleum	4			3		2	11		3	6		4	7		4	8		3	55
13	Power generation	2			3			1			5			5		1	10		1	28
14	Quarry				3			13			17			23			41			97
15	Railway							1												1
16	Transportation													1						1
17	Recreation							15			32	1		35			40			123
18	Waste treatment	1			3			10			1			11	1	1	19			47
19	Water supply				1			2	1		2			2			2			10
20	EEZ (b)				1						3						4			8
	Total	10		1	31	1	3	105	2	5	162	2	12	182	1	17	209	1	9	748

Key:

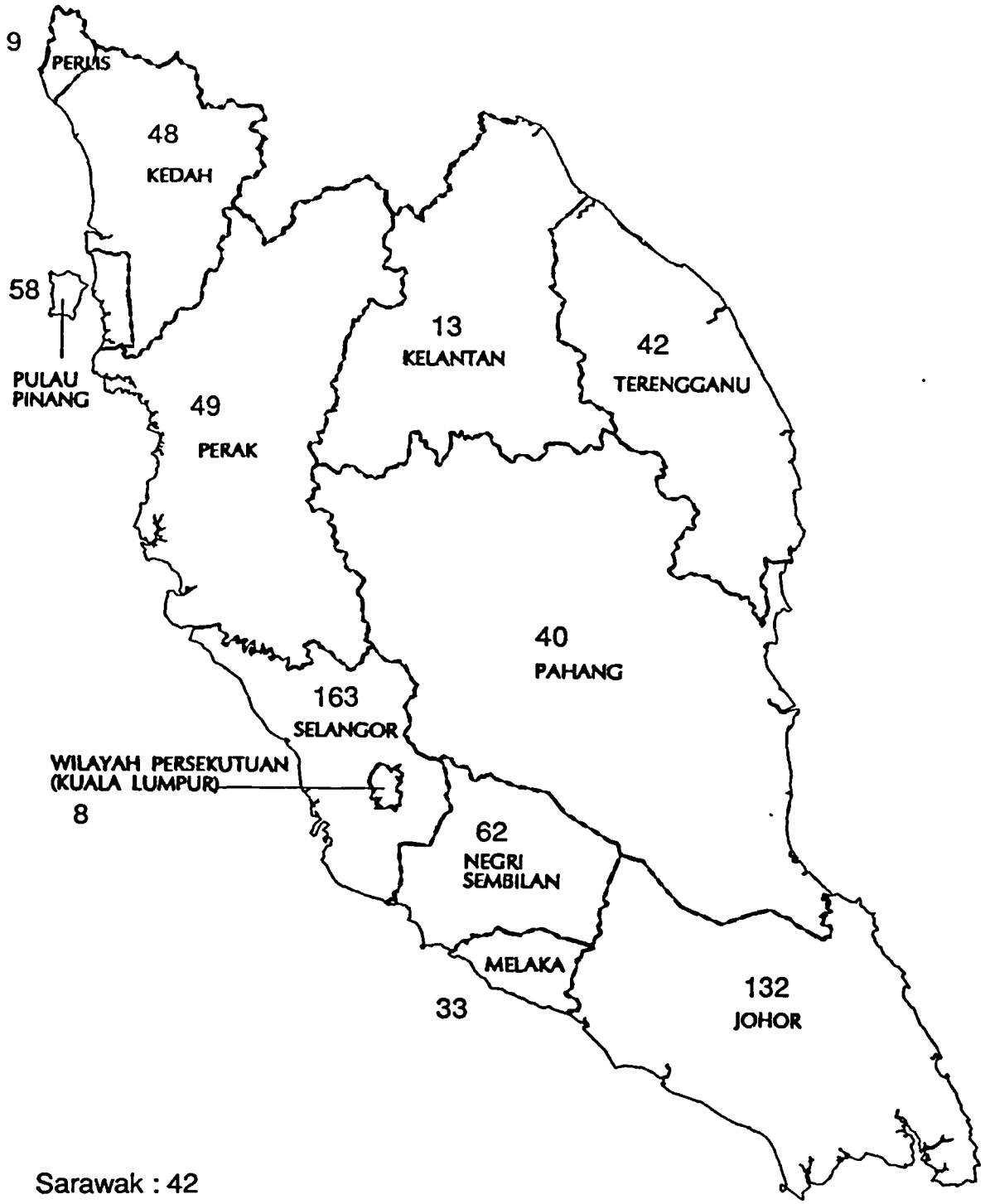
(a): Project's activity according to EIA Order, 1987

(b): Petroleum project development in Exclusive Economic Zone

PA: Preliminary Assessment

DA: Detailed Assessment

RA: Risk Analysis



Sarawak : 42
Sabah : 31
Labuan : 4
Exclusive Economic Zone (coastal): 8
> One State : 6

Key:
digital number : number of EIA cases

Figure 5.5 Geographical distribution of EIA cases in Malaysia (by October 1993)

5.9 AVAILABILITY OF RESOURCES FOR EIA IMPLEMENTATION

5.9.1 HUMAN RESOURCES

In order to strengthen the knowledge and skill of EIA participants, various EIA training courses have been organised. The former Personnel Training Centre established in 1959 was upgraded to a training institute, the National Institute of Public Administration (INTAN) Malaysia, in 1972. The INTAN under the Public Services Department of the Prime Minister Department, has a general objective to upgrade human resource potential through training to achieve excellence in the public sector. The main activities of the INTAN are: research and publication, consultancy services and training, including environmental training (*INTAN 1993*). The INTAN moved into the field of environmental training in the mid 1980's in response to the client demand at that time. After EIA was made as a mandatory requirement by the DOE, training programmes on environmental planning and management, covering EIA, have been organised by the INTAN since 1987 (*INTAN 1992*).

There are two types of EIA courses held on a regular basis every year, both at the Headquarters of the INTAN and at State level (Sarawak and Sabah). Seminars on EIA started from 1989 and Quality Assurance for EIA started from 1988 have been organised from time to time. The duration of the EIA training programmes normally range from 7-14 days. It is found that as the time gets longer, the numbers and levels of participants falls. For EIA training at State level, the INTAN organises a consultancy team to run the training programmes. Most of the participants in the EIA training programmes are from public sectors. About 30% of the total participants are from private sectors or NGOs etc.. The NGOs, such as the Environmental Management and Research Association Malaysia, and the Malaysian Institute of Management, have also conducted training workshops for private sector.

From 1988 to 1993, more than 500 people completed the EIA training programmes. From time to time, the DOE organises briefings or site visits of EIA cases to strengthen the knowledge and experience of officers responsible for processing EIA cases. However, it is evident that currently there is still a shortage of manpower and expertise in the participating agencies, especially at state level. To strengthen EIA awareness among the relevant parties, a total of 15 presentations, such as lectures, briefings and seminars, on EIA were organised by the DOE in 1992. In addition, the DOE briefed some of the State Governments about the progress of EIA implementation.

In most cases, EIA reports were prepared by environmental consultancy firms on behalf of project proponents. Currently, there is no formal registration system for consultants. Nevertheless, the DOE has maintained a list of consultants (about 160 firms) which have conducted EIAs or have made submission of their capability to carry out EIA (*Malaysia DOE 1993b*). This list may be used as a reference by project initiators when tendering contracts.

5.9.2 PHYSICAL RESOURCES

The DOE has established a computerised EIA Tracking System, to monitor the status of EIA cases. Information with respect to EIA cost, man-months spent in preparing EIA reports and assessment techniques and so on, is included in the Tracking System. A questionnaire designed by the EIA Section covering EIA related questions, needs to be completed by project initiators and submitted along with their EIA reports. The DOE has established a central EIA report repository and a database of EIA reports, but no central environmental database has yet been set up.

In 1991, a computer application system called "Environmental Input to Development Planning" was developed by the DOE to support resource utilisation and regional/structure planning. The tool of Geographical Information Systems (GIS) has

been applied to develop resource information database which is being used to facilitate resource planning and to support the formulation of regional planning and environmental improvement projects as well as review EIA cases. A GIS Unit was established by the DOE in 1992. The main objectives of the GIS Unit are: i. to promote the DOE capability of assessing development plan which is in line with the Government's policy; ii. to ensure that environmental factors are taken into consideration in developmental planning in line with the concept of sustainable development. To achieve these objectives, the GIS Unit is responsible for the following tasks:

i. to use GIS to develop an Environmental Information System that will enable the DOE to incorporate environmental aspects at the planning stage, and also safeguard the interests of other sectors (e.g. industry, housing and agriculture),
ii. to integrate all environmental information so that integrated management approach can be achieved,
iii. to develop various scenarios and adopt the alternative which has the least impact on the environment,
iv. to integrate with the Management Information System.

In the EIA process, the GIS Unit provides information, for example on environmentally sensitive areas, water catchment and natural resources, in a spatial form to the EIA Technical Committee or Review Panel during the review of EIA reports.

5.10 CASE STUDY: "THE PROPOSED PETROLEUM REFINERY, BINTULU, SARAWAK, MALAYSIA"

5.10.1 BACKGROUND

Under the current Malaysian legislation, the development of a petroleum refinery is one of the Prescribed Activities defined in the Environmental Quality (Prescribed Activity) Order of 1987, for which EIA study is a mandatory requirement. According to the

provisions, the project initiator requires an approval of EIA from the Director General of Environmental Quality before the proposed project is allowed to proceed.

The 150,000 barrel refinery was proposed by the Pacific Resources, INC., USA, a subsidiary of Broken Hill Proprietary of Australia, in 1991. The project was to be located within the Bintulu Industrial Park, Sarawak State. Under the Bintulu Master Plan, this industrial park had been established where there were some previously established gas and petroleum related industries. (*Pacific Resources, INC. 1992*). The project site is shown in **Figure 5.6**.

5.10.2 EIA OF THE PROJECT

After screening, the necessity for conducting EIA was confirmed. The project initiator engaged private consultants to carry out the Preliminary Assessment according to the TOR signed by the two parties. In 1992, the Preliminary Assessment Report was submitted to the DOE along with two supplementary reports (geological assessment report and Bintulu Port Dredging and Reclamation Report) and a Risk Analysis.

The Preliminary Assessment Report was reviewed by the EIA Technical Committee of the DOE. Approval for the proposed project was given by the Director General of Environmental Quality together with several imposed terms and conditions. An Emergency Response Plan for on-site and off-site was required to be submitted to the DOE, DOE State Office in Sarawak and relevant parties. The project initiator was required to conduct monitoring programmes for effluent quality, marine water quality, ambient air quality and noise during the phases of project construction, commission and operation. The monitoring reports were required to be submitted to the DOE every three months. A post of officer in charge of handling activities in relation to environmental management must be incorporated in the organisational structure of the plant. Three copies of the final layout plans taking into account all conditions set out by the DOE must

be sent to the DOE for approval before the construction work was started (*Malaysia DOE 1992d*).

5.10.3 DISCUSSION OF THE CASE STUDY

A number of conditions were imposed on the EIA approval. Monitoring was required to be undertaken by the initiator; the monitoring results need to be submitted to the responsible authorities at a regular interval. The initiator was also requested to allocate the task of environmental management for the proposed project to a specified person. However, there were some shortcomings in the adopted procedures. The TOR was agreed and drawn by the project initiator and hired consultants only, rather than by the EIA Technical Committee of the DOE. A study of regional carrying capacity for Bintulu Industrial Park has never been conducted. Due to lack of data, cumulative impacts of the existing industries in the industrial park were not truly taken into account, when conducting the Preliminary Assessment for the proposed project.

5.11 THE LINKAGE OF PROJECT LEVEL EIA AND DEVELOPMENT PLANNING, PROGRAMMING AND POLICY-MAKING (STRATEGIC ENVIRONMENTAL ASSESSMENT)

In 1992, the DOE provided environmental input to a total of 39 development and natural resource development projects. Although the DOE which has heavily involved at an early stage in the formulation of resource utilisation plans, and regional, local, master and structure plans, especially in relation to the preparation of TOR, strategic environmental assessment (SEA), has not yet been formally introduced in Malaysia.

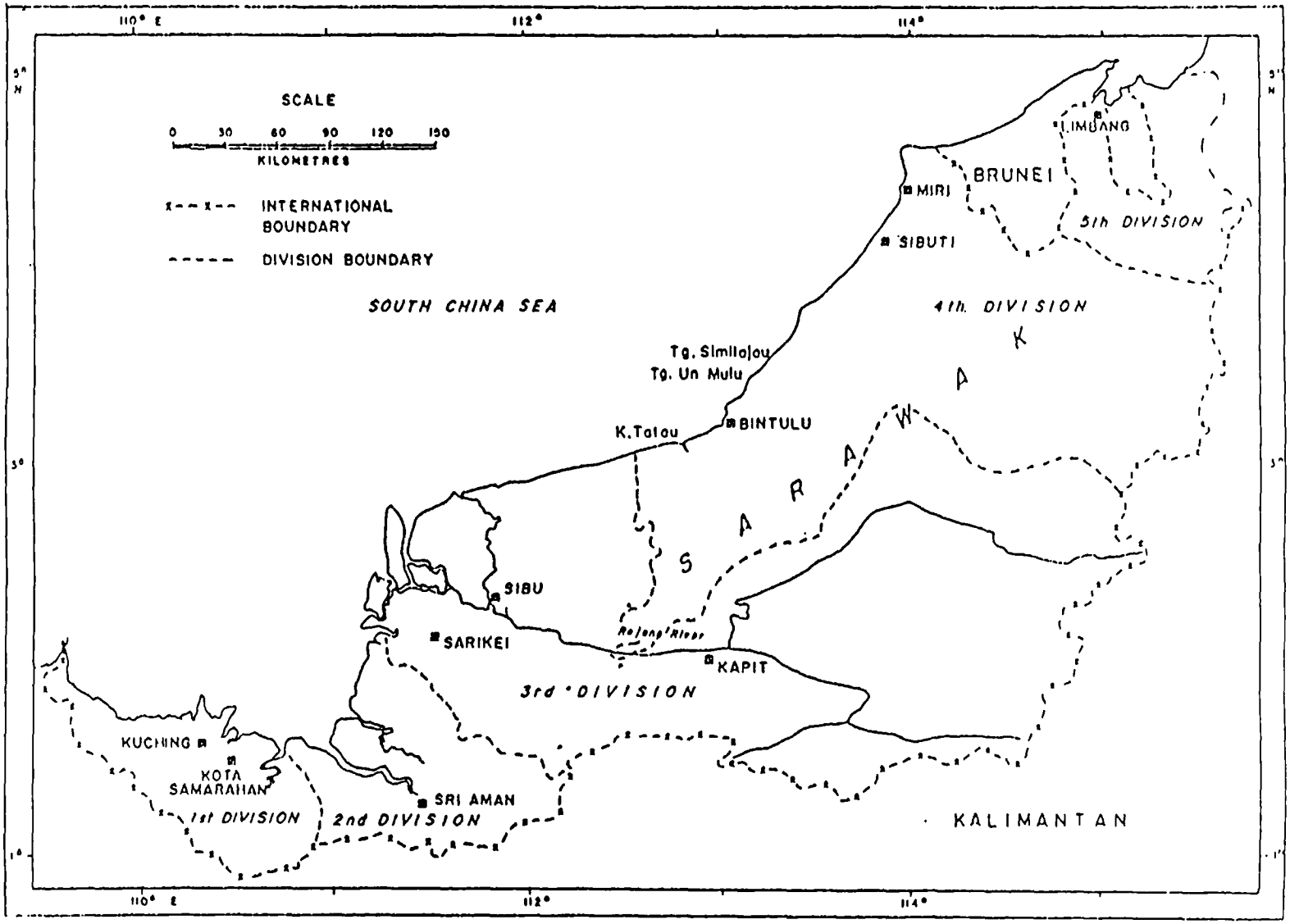


Figure 5.6 The location of the proposed Petroleum Refinery, Bintulu, Sarawak, Malaysia

5.12 EFFECTIVENESS OF THE EIA SYSTEM

5.12.1 ACHIEVEMENTS AND SHORTCOMINGS OF THE CURRENT SYSTEM

Environmental policies, regulations and guidelines

The legal basis for EIA implementation was established in Malaysia, through the 1985 Amendments to the EQA of 1974 (2.1 - 3)[f] and was enhanced by the Environmental Quality (Prescribed Activities) Order of 1987. In this Order, 19 categories of specific activities were designated to be subject to EIA. These Prescribed Activities defined, in terms of project size or capacity, have been used for EIA screening (2.1 - 4). Nevertheless, no direct evidence was available about how effective project screening has been in Malaysia (2.1 - 16).

Due to the federal nature of the country, State Governments have high degree of independence and control over natural resources under their jurisdiction. With respect to EIA, the EQA of 1974 is federal legislation which is applied nationally but only to matters under central government control. No State has parallel regulations or any EIA requirement in law. In addition, State Governments are under considerable political and economic pressures to exploit natural resources and promote economic developments. Therefore, the level of adequacy of policies and programmes dealing with environmental and natural resource management concerns as a context for EIA implementation is mixed and difficult to evaluate at an overview level (1.2 - 1; 2.1 - 1). Moreover, SEA has not yet formally been introduced by the Government (2.1 - 2). Although there are handbooks, booklets and guides to provide guidance on procedures to the various participants, EIA technical guidelines are not available for most of the 19 categories of Prescribed Activities. Currently, only four guidelines are being prepared by the DOE and relevant

[f] As in Chapter 1 and 2, the notations refer to the components and elements listed in Table 1.2 and 2.1. As before, the components and elements are referred to by table and item number (s), e.g. 2.1 -3.

key agencies, such as the Public Work Department (2.1 - 5). Also, the DOE has not introduced a guide for EIA review (2.1 - 7).

It is evident that provisions relating to the format and contents of the EIA report are not adequate. There are lack of formal requirements for environmental monitoring and management plans, and for a non-technical summary, in the EIA report (1.2 - 5; 2.1 -6). The provisions which specify the difference between Preliminary Assessment and Detailed Assessment are not clear enough. It was observed that in total there were 698 Preliminary Assessment Reports received by the DOE from 1988 to 1993, but only 7 Detailed Assessment Reports were received over the same period of time. In order to avoid preparing Detailed Assessment Reports which may involve more resources or result in possible delays in project proceeding, many project initiators intend to produce EIA reports which fall into the scope between Preliminary Assessment and Detailed Assessment if they consider the proposed projects are relatively complicated or problematic. Although, the provisions relating to EIA appeals, compliance monitoring and enforcement were stipulated in the 1985 Amendments, no guidelines have been introduced by the DOE (2.1 - 8, 9).

Administrative Framework

The DOE is the core agency responsible for development and management of the EIA system (2.1 - 10). The various key participating authorities, e.g. PWD, are encouraged to set up task forces or working units to deal with EIA cases and act as statutory consultees in the EIA process (2.1 - 15).

It is evident that the coordination among various governmental agencies, especially between central and state level, is poor (2.1 - 11, 13). Malaysia has an administrative system of Federal and State Government. It is, sometimes, difficult to enforce EIA on activities relating to resource exploitation which are usually under the jurisdiction of State Governments, whereas EIA is a Federal legislation. State Governments have influence on

deciding whether or not proposed projects can proceed, no matter whether EIA reports (if required) are approved or not. There was an example in the past, where a hazardous waste treatment plant was proposed by a private initiator and approved by the DOE after EIA review, but the project did not proceed due to the objection of the State Government. The EIA Section is in housed within the DOE under the MSTE. Its authority is limited to areas under federal jurisdiction, thus excluding almost all, but industrial developments from its purview. The effectiveness of interagency coordination might have been hampered as a result of the low status of EIA Section in the administrative hierarchy. The Malaysian Government adopts a top-down approach to implement the EIA system. The power is centralised. In the past, State Governments have had little influence during the EIA process, although they may have the power of veto against the final decisions after the EIA process. It was not until 1993, that the DOE delegated the power of reviewing Preliminary Assessment Reports to 5 of its State Offices (1.2 - 2; 2.1 - 12, 14).

EIA Procedure

At present, there is no formal requirement for a scoping meeting to set out the TOR for a Preliminary Assessment study, nor are mandatory requirements for conducting site visits by the EIA Technical Committee or the Review Panel at an early stage of the EIA process (2.1 - 17). A formal mechanism for the independent review of Detailed Assessments is in place. However, there are no paths for the public to participate in the review of the Preliminary Assessment, although some forms of public consultation are mandatory while preparing both the Preliminary Assessment and Detailed Assessment Reports (2.1 - 18, 19, 20, 21). Unlike Detailed Assessment Reports, Preliminary Assessment Reports are not required to be made public. The public has no channels to gain access or to investigate these reports during the process of Preliminary Assessment review (2.1 - 23). In the process of Detailed Assessment, the public and interested parties have more opportunities to be involved in review and decision-making (2.1 - 22), and gain access to and to investigate EIA reports, as well as make representations. Many of these opportunities are not available in the process of Preliminary Assessment. Since only 7 out of 748 EIA

reports were Detailed Assessment Reports by 1993, it is evident that public consultation and participation in the current system are inadequate, limited and not effective (1.2 - 3). No proper formal channels for dealing with appeals or dispute settlement, regarding decisions given or the legal process of EIA, have been incorporated in the EIA procedure. The Appeal Board, stipulated in the EQA of 1974, has not yet been established. By 1991, the DOE received 6 appeals against the conditions of EIA approvals. These cases were reviewed again by the DOE only (2.1 - 24). The time limit for each key step of the EIA procedure is clearly defined, but it is found that the norm of one month initially set for the review of a Preliminary Assessment Report is difficult to meet in practice (2.1 - 25).

Role of Actors Involved

The role and duties of various participants are clearly defined in EIA regulations and guide (2.1 - 26). For Preliminary Assessment review, the cases are handled by the EIA Technical Committee housed within the DOE. Although the One-Stop Agency may be involved, this agency would only be called upon to review problematic cases of Preliminary Assessment forwarded by the EIA Technical Committee. As for Detailed Assessment, an independent EIA Review Panel is responsible for Detailed Assessment review (1.2 - 4; 2.1 - 27). There are no involvement's of a superordinate body or judicial agencies to resolve appeals concerning decisions given or the legal process of EIA (2.1 - 28, 29).

EIA Compliance Monitoring and Enforcement

The DOE has undertaken a programme to monitor the implementing status of the EIA projects. The Control Division under the DOE coordinate and formulate the monitoring and enforcement programmes to be carried out by the DOE State Offices. Currently, the programme has not been effectively undertaken at state level due to lack of man-power and financial resources (1.2 - 6; 2.1 - 30, 31, 44, 47). In addition, local communities have no role to play in the programme (2.1 - 33). The DOE has adopted a set of criteria in deciding the necessity of environmental monitoring programme, this programme has not

been required for every project subject to EIA and the initiators do not need to submit monitoring results of their projects to the responsible agencies on a regular basis. So far, the DOE has only received a small number of proposals for monitoring programmes from the project initiators (2.1 - 32).

In addition, under Section 34 of the EQA of 1974, the jurisdiction of the DOE in the EIA system is only on EIA reports. The DOE has not been given the powers to make the final decisions, nor to stop project proceeding if the conditions imposed on EIA approval are breached. Although penalties/sanctions are defined in the EIA regulation, these have not yet been used against any project initiator for non-compliance with EIA conditions (2.1 - 34). The approval of EIA projects has been closely linked with the existing permitting/licensing system, as one of the requirements for planning application (2.1 - 35).

EIA Implementation in Practice

The strong influence of political and economic factors on EIA implementation in Malaysia was observed. The priority of economic growth is much higher than that of environmental protection in a national context (2.1 - 36). In general, the attitude of project initiators is business-oriented rather than environmentally-oriented. There is a lack of willingness to comply with EIA requirements. Many of the project initiators consider EIA as an another obstacle to overcome within an already complicated bureaucratic set up. Ironically, the Government's policy which encourages rapid economic growth and concomitant lax environmental control during the last few decades, has been largely responsible for industry's attitude towards EIA (*Nor 1991*). Lack of awareness of EIA as a useful tool in project decision-making prevails among business and political leaders (1.2 - 7; 2.1 - 38). The degree of commitment of decision-makers in the public sector and the strength of support for EIA by private sector participants is evidently low. Moreover, project initiators often have substantial political influence behind them. EIA requirements are often disregarded and consultants encounter considerable constraints in undertaking

adequate EIA studies, especially when the extent and cost of mitigation measures are been considered. Although many EIA studies have been conducted, in many cases EIA reports were produced mainly to accommodate the proposed projects, since the project initiators seldom provide consultants with any practical options or alternatives to work with, and potential sites for the projects have already been decided beforehand (2.1 - 39). Also, frequently the proposed project has been approved by the approving authorities (e.g. State Government), while the EIA report is being reviewed by the DOE or the report has not yet been prepared. The coordination between the DOE and approving authorities is not effective.

The public are generally found to be lacking in environmental awareness. The lack of public involvement in the EIA procedure has been recognised, particularly during the preparation and review of EIA reports and publicity of Detailed Assessment Reports. The records have shown that to date the effectiveness of public participation has been poor (*Harun 1993*) (2.1 - 37). Although the public and interested parties are free to express their view, the Government has, frequently, exerted its coercive powers to dampen public criticisms of its policies and programmes. The access of the public and interested parties to public/private sector decision-makers and their influence over planning and development decisions, is quite limited (2.1 - 40). The NGO community is well developed in Malaysia and they are quite actively involved in EIA. The members of the EIA Review Panel also include representatives from the NGO community (2.1 - 42). The establishment of an One-Stop Agency which reviews Preliminary Assessment Reports forwarded by the EIA Technical Committee, is a positive result of the process of learn by doing. The Government has shown its willingness to experiment and adopt new approaches, in the light of experience, to improve the effectiveness of EIA administration (2.1 - 41). Since SEA has not formally been introduced in Malaysia, no EIA study has been done prior to planning of regional policies, plans or industrial parks. Similarly, cumulative impact assessment has rarely been studied by the project initiators in most of the EIA cases. For instance, in the aforementioned case study the proposed project was to

be located within the industrial park where several developments already existed, but no assessment on cumulative impacts was done (1.2 - 9; 2.1 - 43).

Availability of Resources

Since 1993, the DOE has decentralised its power of EIA review to a number of States. There are genuine concerns about the problems in relation to lack of man-power and financial resources for EIA implementation and enforcement among various participating agencies, especially at state level (1.2 - 8; 2.1 - 44, 47). In order to strengthen and develop indigenous EIA capability, the Government and a number of NGOs have organised regular EIA training programmes for various participants (2.1 - 45). No formal registration system for environmental consultants is in place. Currently, the DOE maintains a database of consultants for use by project initiators as a reference, when tendering EIA contracts (2.1 - 46). No central environmental database has been developed. Lack of baseline environmental data is one of the main difficulties encountered by project initiators when conducting EIA studies. The environmental quality of the proposed project site is often projected from the current land use owing to lack of data. This shortcoming has affected the quality of EIA reports and possibly has resulted in delays of EIA studies (2.1 - 48). A formal EIA tracking system has been set up, which records the status of EIA projects and reports the results in the form of EIA newsletter. A database of EIA reports is also in place (2.1 - 50). The DOE has set up a special GIS Unit responsible for developing environmental database and supporting State Governments in the formulation of regional/local plans by providing environmental input. The information generated by the Unit is also used to facilitate the EIA review process (2.1 - 49).

International Interactions

The influence of international forces on environmental management and protection issues in Malaysia, including EIA implementation, is evidently low due to the strong approach towards economic developments adopted by the Government (1.2 - 10). At the 1989

Commonwealth Heads of Government Meeting in Malaysia, the outcome document 'Langkawi Declaration on the Environment' stated, at Malaysia's insistence, that environmental concerns should not be used to introduce a new form of conditions in aid and development financing, nor as a pretext for creating unjustified barrier to trade (*Commonwealth 1989*). More recently, in the 1992 Rio Earth Summit Malaysia was one of the leading countries in demanding northern industrialised nations to provide funds in order to assist developing nations in adapting their development strategies to reduce global environmental problems. It may be considered that the lack of international pressures can be attributed largely to Malaysia being more economically developed and less dependent on foreign aid, and stronger resistance to international pressures and criticisms than other developing countries in the South-East Asian region (2.1 - 51, 57). One of the recent examples was the Pergau Dam project in Malaysia. This project was funded by the British Overseas Development Administration. The NGOs in the UK, i.e. the World Development Movement and the Friends of the Earth, challenged the British Government's decision in the High Court in 1994 (*World Development Movement 1995*). This case resulted in conflicts between the UK and Malaysia.

5.12.2 RECOMMENDATIONS FOR IMPROVEMENT OF THE EIA SYSTEM

Environmental Policies, Regulations and Guidelines

Because State Governments have high degree of independence and control over natural resources and development whereas current EIA legislation is federal, a solution could be to introduce parallel EIA regulations at state level so that the effectiveness of EIA implementation could be improved. With respect to the requirements of EIA reports, the scope of Preliminary Assessment and Detailed Assessment should be more clearly distinguished so that the trade-offs in deciding the requirements between Preliminary Assessment and Detailed Assessment would be more justified. It is also suggested that the contents of a Preliminary Assessment Report should be simplified. Moreover, the scope

of the EIA report should be widened to cover formal environmental management and monitoring plans, and a non-technical summary. Also, the details of measures used for impact mitigation and environmental management, which include equipment's used and man-power, should be clearly stated in EIA reports. Environmental regulations and criteria used in the EIA study should be appended. It is suggested that the length of EIA reports, both Preliminary Assessment and Detailed Assessment Reports, should be defined in principle. EIA technical guidelines for various types of Prescribed Activities, procedural guide (i.e. scoping, review), and guidelines for appeals, compliance monitoring and enforcement, should be introduced by the DOE. The possible range of costs for conducting EIA of various Prescribed Activities should be included in the EIA guidelines, which would be useful information to initiators when preparing tenders for contracts. The requirements of SEA should be introduced and stipulated in relevant regulations.

Administrative Framework

The cooperation and coordination between State Governments and Federal Agencies need to be enhanced. The promotion of the concept of EIA as a useful tool in project decision-making process is an important work and should be strengthened continuously so that State Governments and relevant key authorities are more willing to incorporate EIA into their procedures. To improve the effectiveness of inter-agency coordination, the status of the EIA Section should be upgraded so that it can exert more influence on EIA implementation on other federal/state authorities. Since 1993, the DOE has delegated the power of reviewing Preliminary Assessment Reports to 5 of its State Offices. The decentralisation of EIA implementation is an approach which would be more appropriate to fit into the current system of Federal/State Government in Malaysia. The process of decentralisation should be speeded up and applied throughout Malaysia.

EIA Procedure

A number of recommendations can be made to improve the current procedures. Thus, it is suggested that as part of Preliminary Assessment a site visit should be conducted by the EIA Technical Committee after screening but prior to the scoping meeting at which the TOR are determined. The Preliminary Assessment Reports need to be made public for one month after the reports are submitted to the EIA Technical Committee and copies of these reports should also be sent to the relevant agencies for comments. A public presentation for the proposed project should be held by the project initiators following the public display of Preliminary Assessment Reports. The Preliminary Assessment Report should be passed to the One-Stop Agency for review. Representations raised by the public or interested parties concerning the proposed project should be submitted in written form to the One-Stop Agency after the public presentation. The project initiator should inform the public or interested parties about his responses to the representations. The One-Stop Agency should review the Preliminary Assessment Report taking into account comments from the public and relevant agencies, and then submit its recommendations to the Director General of Environmental Quality for decisions. The decision of Director General of Environmental Quality on the proposed project should then be put on public records. If the public, interested parties, the relevant agencies or the project initiator do not accept the decision on Preliminary Assessment, channels should be available for them to appeal.

At the stage of Detailed Assessment, the Review Panel should conduct a site visit prior to the scoping meeting. The Detailed Assessment Report should be made public after being received by the Review Panel. The Review Panel should take into account representations from the public, interested parties and relevant agencies before a decision is made. The review results should be put on public records. Appeals (if any) should be made to the appropriate authorities. Allocation of the tasks for EIA monitoring and follow-up should be made by the DOE after EIA review.

Role of Actors Involved

It is suggested that the task of reviewing Preliminary Assessment Reports should be shifted to the One-Stop Agency from the EIA Technical Committee so that the review process will be undertaken by an inter-agency panel. Local communities and interested parties should have channels to be involved in the activities of the One-Stop Agency. To safeguard the fairness and legality of EIA, a superordinate authority (i.e. the Environmental Quality Council) and judicial agencies should be given the powers to resolve appeals regarding decisions given or the legal process of EIA respectively.

EIA Compliance Monitoring and Enforcement

The budget for carrying out monitoring programmes and mitigation measures should be made clear in the EIA reports by project initiators and approved by the DOE and/or its State Offices. EIA regulations should be revised to make the requirement of monitoring programmes for every project subject to EIA mandatory. It is also suggested that post project EIA monitoring reports should be submitted to the appropriate DOE State Office by project initiators on a regular basis during the phases of project preparation, construction, commission and operation. Channels for public to participate and access to the results of EIA monitoring should be formally incorporated in the EIA compliance monitoring and enforcement programme. Section 34A of the EQA, 1974 should be revised by giving the power to stop a project proceeding or withdrawing the planning permit to the Director General of Environmental Quality: where the EIA of the proposed project is not completed and approved; or the conclusions of EIA review are that the proposed project should not proceed; or that there have been breaches of imposed conditions of EIA approval which are not remedied by the project initiators within certain period of time.

EIA Implementation in Practice

EIA awareness and environmental education among the public should be strengthened. Public participation is one of the most important parts of the EIA system. More channels

for public involvement should be encouraged and incorporated into the EIA procedure. Mass media are useful tools which can be used to promote EIA awareness. The coordination among project initiators, consultants and engineering constructors should be enhanced in the preparation of EIA reports and implementation of EIA approvals. The approach and attitude of project initiators towards to EIA should be changed. EIA studies should be initiated at an early stage of project planning, so that EIA can avoid being a decorative tool. Similarly, the attitude and perception of political leaders towards to EIA as a useful tool should also be strengthened.

Availability of Resources

In order to fulfil the duty of EIA implementation and other environmental tasks, man-power, expertise and budget in the participating agencies should be strengthened, especially at state level if decentralised is to be actively pursued in the future. The benefits of establishing a central environmental database for use in environmental management and EIA implementation are recognised and it should be established by the DOE. It is suggested that the infrastructure facilitating EIA implementation (e.g. EIA Tracking System, GIS) should be made available for public and interested groups consultation.

CHAPTER 6.

ENVIRONMENTAL IMPACT ASSESSMENT IN INDONESIA

6.1 INTRODUCTION

The rapid economic development has created considerable stress on the environment in Indonesia over the past two decades. The environmental problems are characterised by a mixture of natural resource exploitation, population expansion, reduced urban environmental quality and worsening pollution problems. The concept of environmental management and protection in Indonesia have their beginnings in the 1945 Constitution, in which Article 33 states that "Land and water and the natural resources therein shall be utilised for the greatest welfare of the people" (*Government of Indonesia 1945*). It has long been recognised by the Government that if there is to be continued national development for the benefit of current and future generations, it has to sustain the capability of the environment. The Indonesia interpretation of sustainable development was firstly stated in the Guidelines of the State Policy of 1973. To achieve this goal of sustainability, an integrated national policy on environmental impact assessment is required.

This Chapter examines the development and current status of this EIA policy and is based on a review of available documents and a field trip to the Indonesian Environmental Impact Management Agency (EIMA) in November 1993. Prior to the field work, contacts had been made with the Canadian advisors involved in the project of Environmental Management Development in Indonesia (EMDI). A number of official documents and regulations relating to EIA were obtained, which enabled pre-field-work preparation to be

undertaken, e.g. document review and questionnaire design. During the period of field work, a number of interviews were carried out with the Canadian advisors and the Indonesian staff of the EIMA and the staff in the National Coordinating Agency for Survey and Mapping. The views presented here are the results of these interviews and discussions, and may not represent the official views of the EIMA.

6.2 EVOLUTION OF THE EIA SYSTEM

6.2.1 BACKGROUND

In 1968, after President Soeharto came in to power, the New Order government was established in Indonesia. The dominant civil groups in the Government were technocrats who had been educated abroad during the 1960's, mainly in the USA. Many of them were qualified in economic and related disciplines and hold important senior posts within the Government. Some of these officials, with their North American connections, were well aware of the enactment of the US National Environmental Policy Act of 1969 which had resulted from the conflict between development and the increasing environmental awareness among the public in the late 1960's. They quickly foresaw the relevance of this new approach to the situation of Indonesia where the development of natural resources was recognised as an important way to reach prosperity from poverty and to meet people's needs.

It is important to notice that environmental initiatives in developed countries are mainly led by scientists and members of the public interested in environmental protection and preservation. In the case of Indonesia, the initiatives were taken not only by scientists and resource managers, but also by senior officials with economic and related disciplines charged with responsibility for economic and social development. After the US NEPA of 1969 came into force its influence spread overseas wherever the United States Agency for

International Development (USAID) carried out its foreign developments. In the middle 1970's, the US courts ruled in favour of the environmental groups and required the USAID to establish a consistent policy for EIA of its overseas projects. As early as 1974-1975, the Indonesian Ministry of Public Works and Electric Power (now divided into Public Works and National Electricity Cooperation) was aware of the need for EIA to ensure the continuing flow of aid dollars. One of the examples was the Indonesia's first high-speed highway between Bogor and Jakarta built in 1975-1978 which was funded by the USAID. An EIA study was conducted through Public Works, which was aimed to conform with the established USAID policy (*Conover and Hanson 1992*).

The first EIA report was produced in 1974 for a cement factory. Around 1976, EIA became semi-institutionalised in two departments: Mining and Energy for oil related projects, and Public Works for swampland development. After its establishment, the Ministry of State for Development Supervision and the Environment (now the Ministry of State for Environment) had initiated technical work on developing the EIA process in 1979. The purpose was to explore whether EIA could become a real environmental management tool with a legal basis in the decision-making process. Indonesia declared the intention to create a comprehensive EIA process through Act No.4 of 1982, "Basic provisions for Management of Living Environment" (*Government of Indonesia 1982a*). Article 16 to Act No.4 of 1982 stipulates that "Every plan which is considered likely to have a significant impact on the environment must be accompanied with an analysis of environmental impacts, carried out according to government regulations". Based on the Act No.4 of 1982, the statutory EIA process was established by the Government through Government Regulation No.29 of 1986 (GR 29/1986) (*Government of Indonesia 1986*).

6.2.2 INTERNATIONAL ASSISTANCE IN DEVELOPING THE EIA SYSTEM

The project of Environmental Management Development in Indonesia (EMDI), a joint project of the Ministry of State for Population and the Environment and Dalhousie

University, Canada, is designed to upgrade environmental management capacities in Indonesia through institutional strengthening and human resources development (*EIMA 1992a*). This project is sponsored by the Canadian International Development Agency (CIDA) and was started in November 1983. One of the emphases in the Third EMDI is EIA. The implementation of EIA regulations is an important priority of the EIMA. Through EMDI, long and short term assistance has been provided to the agencies and sectoral departments, and to selected sectoral and regional EIA Commissions.

6.3 GOVERNMENTAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT AND PROTECTION

6.3.1 CENTRAL LEVEL

6.3.1.1 Ministry of State for Environment

After the United Nations Conference of the Human Environment in Stockholm in 1972, the Indonesian Government established the National Committee on Environment by Presidential Decree No.16 of 1972. In 1974, the Bureau for Natural Resources and Environment was set up under the jurisdiction of the National Development Planning Board. In the period from 1974 to 1978, the National Development Planning Board played an important role in the management of environmental affairs. The role of the National Development Planning Board was later filled by the Ministry of State for Development Supervision and the Environment formed in 1978. A high level Coordinating Committee on Management of the Living Environment came into operation and headed by the Minister. In order to coordinate the work at the regional level, environmental advisory units were set up in provincial governments, the Provincial Bureaux for Population and the Environment, which were inserted into the national/provincial organisational structure (*Gertler 1983*).

In the early 1980's, the Government recognised that human population and its growth, settlement, migration and daily activities would have significant environmental implications. It was, therefore, decided by the Government to integrate population matters into the existing functions of the Ministry of State for Development Supervision and the Environment after the formation of the new cabinet in 1983. As a result, the Ministry of State for Development Supervision and the Environment was transformed into the Ministry of State for Population and the Environment. The development supervision function of the former Ministry of State for Development Supervision and the Environment was transferred to the Vice President. Due to the increasing importance and work loads of environmental affairs, the Government decided to divide the Ministry of State for Population and the Environment into two separate Ministries: Ministry of State for Environment and Ministry of State for Population, in April 1993.

During the existence of the Ministry of State for Population and the Environment, the main task of the Minister was to handle all matters related to the management of the living environment. Its functions included: i) to develop and formulate policies related to the management of the environment, ii) to plan, within these policies, in a systematic and comprehensive manner, iii) to coordinate all activities in the management of the environment, and iv) to report to the President. After the EIA Regulation, Government Regulation No.29 of 1986 (GR 29/1986) came into effect in 1987, the Ministry has responsibilities in relation to the implementation of the environmental assessment process, which include:

a. providing technical guidance,
b. interpretation of regulations and guidelines,
c. ensuring consistency in application of the process,
d. ensuring minimum acceptable standards of environmental assessment,
e. monitoring the EIA process,
f. appointment to each Central EIA Commission a representative of the Ministry who will be a permanent member of the Commission,

g. coordinating education, training, research and development in environmental impact analysis,

h. deciding upon the qualification of experts in EIA , the granting of licenses and the registration of consultants.

The aforementioned EIA related responsibilities were transferred from the Minster of State for Population and the Environment to a newly formed agency, Environmental Impact Management Agency (EIMA), in 1990. Nevertheless, the Minister of State for Environment is still responsible for proposing any changes to the EIA legislation since the EIMA has no legislative authority. Currently, the mandate of the Ministry of State for Environment is to provide guidance and leadership to those agencies and organisations within Indonesia which are responsible for implementing environmental management and sustainable development.

6.3.1.2 Environmental Impact Management Agency (EIMA) (BAPEDAL: Badan Penfendalian Dampak Lingkungan)

By virtue of Presidential Decree No.23 of 1990, the Environmental Impact Management Agency was set up by the Indonesian Government in June 1990 (*Government of Indonesia 1990a*). The mission statement of the EIMA is to "execute the government functions to control environmental impacts using ecological principles in the utilisation of natural resources such that the negative impacts of development do not alter environmental functions" (*Government of Indonesia 1990b*). The main duty of the EIMA is to assist the President in undertaking the control of environmental impacts, including efforts to prevent environmental pollution and damage, mitigate significant impacts, and restore the quality of the environment. Therefore, the environmental management policies of the EIMA centre around: resource conservation and efficient utilisation; hazardous waste management; use of EIA as a tool for sustainable development; development of environmental support system such as institutions, laws, training, reference laboratories,

information system; and improving environmental awareness and participation of the public in environmental impact control.

The Head of the EIMA is directly responsible to the President, and is assisted by the Deputy for Environmental Pollution Control, the Deputy for Development and the Secretariat (*Government of Indonesia 1990c*). The tasks of the Deputy for Environmental pollution Control are environmental pollution control, the enforcement of environmental quality standards, the environmental management with respect to recovery of hazardous wastes, and solid waste management.

The tasks of the Deputy for Development are to develop, control and monitor the EIA system, to build technical ability in pollution control, to develop the laboratory and data processing and information concerning environmental pollution. The Deputy for Development supervises three Directorates and an Environmental Management Centre, of which more detailed functions are discussed as follows:

i. Directorate for Development Control and Monitoring of EIA: responsible for formulating technical policy, performing the working program, performing the sectoral cooperation and provincial development of control and monitoring EIA.
ii. Directorate for Technical Guidance: to produce the guidelines for training curriculum in EIA, to program and to perform the upgrading of technical ability in pollution control and environmental monitoring, to improve EIA implementation, to develop the incentive system for pollution control activities, and to encourage sectoral coöperation and provide technical guidance to provinces.
iii. Directorate for Development of Reference Laboratory and Data Processing: to develop a reference laboratory and data processing capability, and to collect data and information concerning the environmental impact.
iv. Environmental Management Centre: Through the cooperation between the Indonesian Government and the Government of Japan, a project called the Environmental Management Centre (E.M.C.) was launched to support the functions of the EIMA.

The Japan International Cooperation Agency (JICA) and the EIMA cooperate on this project on behalf of each side respectively. The objective of the E.M.C. is to support the EIMA, especially with the Reference Laboratory, the Information Data Centre and the Training Centre, and also to assist the governmental agencies in the field of environmental policy development and its implementation (*E.M.C. 1993*).

Figure 6.1 shows the organisational structure of the EIMA. Since 1990, the EIMA aims to establish a Regional Environmental Impact Management Agency in each province. However, up to the end of 1993, only two Regional EIMA had been set up.

6.3.1.3 Other Parts of the Central Government

Like other national governments, the Government of Indonesia consists of a number of central ministries and departments each of which has its own mandate to carry out the business of the Government. In Indonesia, natural resources management has come under the jurisdiction of various central agencies, for example the Ministries of Agriculture, Forestry, Mining and Energy. As for the built environment, the Ministries of Industry, Public Works, Transmigration etc., are in charge. It is well recognised that sectoral departments have a significant influence on the success of achieving the goal of environmental management and protection. According to the Constitution of 1945, all of the governmental agencies are required to apply the concept of sustainable development while carrying out their tasks and mandates. The EIA process has been accepted by the Government as the primary tool to accomplish this.

6.3.2 REGIONAL LEVEL

6.3.2.1 Regional Governments

There are two tiers of regional governments, the Province at level I and the District at level II. In accordance with Government Decree No.23 of 1979, all Governors, Mayors and Chiefs are responsible for natural resources and environmental management in the

regions. The Decree gives these officials authority to issue regulations, formulate plans, and coordinate and supervise their implementation. However, the division of duty between central and regional levels of government is complicated by the fact that the Government is based on an unitary system. This means that the lower levels of Government are part of the Central Government. Like the Ministers of the central agencies, the Provincial Governors are appointed and responsible to the President. Moreover, they are responsible to their Provincial Parliaments for approval of all development projects and programmes in their respective provinces, wherever the responsibility for financing, implementation or operation might rest (*Fisher 1991*).

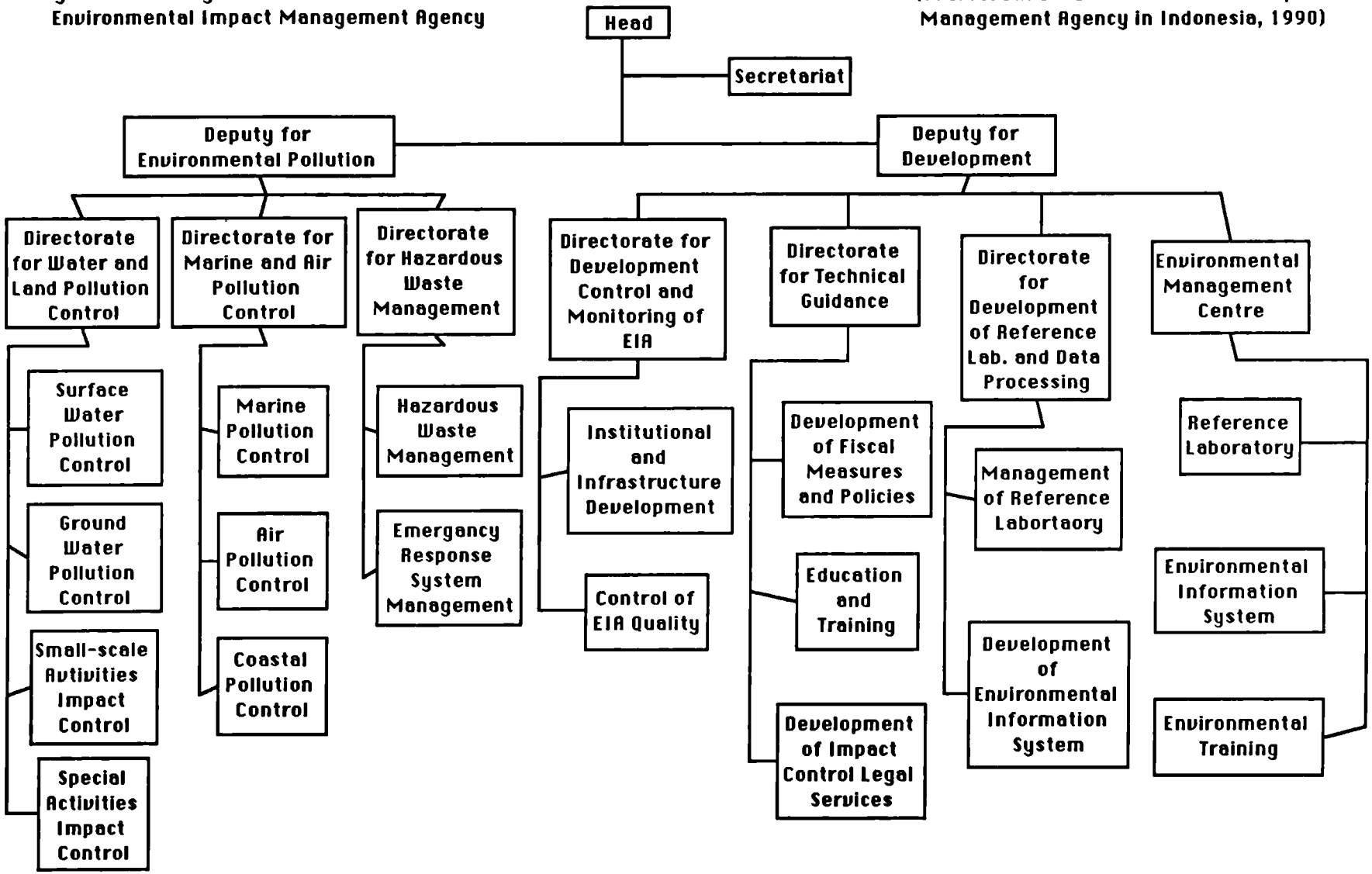
6.3.2.2 Environmental Study Centres

A project for the development of university environmental study centres was instituted in 1978, through the cooperation between the Ministry of State for Population and the Environment (now the Ministry of State for Environment) and the Department of Education and Culture. The environmental study centres have a variety of functions, including i) education and training pertinent to environmental management, ii) research and survey in support of environmental management, and iii) extension services, fostering public education and awareness, identifying local environmental issues, assisting with the formation of grass roots non-governmental organisations (NGOs) and informing and advising appropriate levels of governments (*Conover and Hanson 1992*).

At present, there are 55 environmental study centres in the country, which cover all 27 provinces, although development remains weak in many of them. These environmental study centres are heavily involved in the current EIA system, especially at the provincial level. They provide permanent members of the Regional EIA Commissions and provide technical expertise to governmental agencies in assisting the revision of the EIA guidelines. Quite often, they are hired by project proponents to conduct EIA studies. In addition, they deliver EIA training programmes and are involved in curriculum development.

Figure 6.1 The organisational structure of the Environmental Impact Management Agency

(source: BAPEDAL - Environmental Impact Management Agency in Indonesia, 1990)



6.4 REGULATIONS AND GUIDELINES RELATED TO EIA

6.4.1 GOVERNMENT REGULATION, NO. 29 OF 1986, "ANALYSIS OF ENVIRONMENTAL IMPACTS" (GR 29/1986)

To fulfil the requirement of Article 16 to Act 4/1982, the Government of Indonesia introduced the guidance for implementation of the EIA system through Government Regulation No.29 of 1986, "Analysis of Environmental Impacts" (GR 29/1986) in June, 1986. This legislation was the first piece of environmental protection legislation promulgated under Act 4/1982. In GR 29/1986, EIA is defined as a process incorporating the results of the impacts of proposed activities on the environment, which constitute a factor to consider in the decision-making process. The key provisions stipulated in the GR 29/1986 were as follows:

i. defines a significant impact as a considerable change to the environment resulting from an activity,
ii. defines the relevant documents required to be prepared throughout the EIA procedure,
iii. provides guidance for determining impact significance,
iv. stipulates that the decision to grant a permit for the proposed project can only be made after the environmental management and monitoring plans have been approved by the authorised government agency (A.G.A.),
v. delegates the power of EIA decisions to the Minister of a department, Head of a non-departmental government institution, or the Governor or Head of the province,
vi. sets out an EIA procedure,
vii. requires all A.G.A., including central agencies and provincial governments, to organise inter-agency EIA Commissions,
viii. assigns tasks of human resource development (education, training and research) in EIA to the Minister in charge of environmental management,
ix. contains provisions for public information and consultation,
x. applies the EIA process to existing projects which were underway in June 1987 and had not yet completed an EIA.

It is important to notice that Article 38 to GR. 29/1986, relating to EIA for existing projects, is a 'transitional' regulation which would be ended in 1992. The EIA procedure for existing projects is similar to that for proposed projects. The deadlines for completing EIA for existing projects are June 5, 1990 for projects which use, produce or dispose of hazardous waste and June 5, 1992 for others (*Ministry of State for Population and the Environment 1987a*). This requirement had placed a tremendous burden on the participating agencies.

6.4.2 GOVERNMENT REGULATION, NO. 51 OF 1993 REGARDING EIA (GR 51/1993)

After 6 year experience of implementing GR 29/1986, a number of difficulties emerged. For example, the process was widely seen as being overly complex, as well as being time-consuming for project proponents. The Ministry of State for Environment and EIMA consulted the relevant A.G.A. regarding the revision of GR 29/1986. The objective of this revision has been to simplify and clarify the EIA requirements and to improve the effectiveness and efficiency of the EIA system. The revised regulation of GR 29/1986, " GR 51/1993", was promulgated in October 1993 (*Government of Indonesia 1993a*). Several major changes have been made which are briefly summarised as follows (*Neame and Lubis 1993*):

i. screening guidelines to be set by the EIMA in consultation with relevant responsible agencies,
ii. a simplified EIA procedure to be introduced,
iii. an operating permit is not to be issued until provisions of environmental management plan and environmental monitoring plan have been implemented,
iv. three new types of EIA have been specified, including EIA for multi-sector projects, EIA for industrial estates and other special zones, and EIA for regional development or spatial planning areas,

v. additional agencies and groups are included as permanent or temporary members of the EIA Commission,

vi. the EIMA has taken over the role of the Ministry of State for Environment for supervision and management of the EIA system,

vii. The provisions relating to the requirement of EIA for existing projects, are deleted from the regulations. A problem of insisting on EIA for existing projects is that Indonesia simply does not have the financial and human resources and the project magnitude and importance of existing projects does not always require this.

6.4.3 EIA GUIDELINES

After GR 29/1986 was promulgated, general guidelines for EIA implementation were established through several Ministerial Decrees. These guidelines outline framework for carrying out various components of the EIA process and also detail the authority, role and function of the commission. EIA Technical Guidelines were prepared by sectoral departments in 1987, which contained technical guidance for EIA of specific types of projects. The sectoral departments also developed guidance for their staffs and Central EIA Commissions. Topics such as screening, roles of commission, roles of technical working team, list of the project types excluded from the EIA procedure, were included (*Langford 1991*). When the revised EIA regulation, GR 51/1993, came into effect in October 1993, all relevant EIA Technical Guidelines are required to be revised accordingly. At present, the EIMA is preparing EIA Technical Guidelines for various types of development which were originally issued by sectoral departments, together with guidelines for multi-sectoral projects.

The criteria for deciding if there are major impacts which should be considered in an EIA study is provided in Article 16 to Act No.4 of 1982. They include the total number of people affected, the size of the area affected, the length of time during which the impact will persist, the intensity of the impact, the number of other environmental components

affected, the cumulative nature of the impact, and reversible or irreversible impact (*Government of Indonesia 1982b*). In many countries, EIA processes exclude all projects except those that are explicitly "scheduled". This is not the case in Indonesia where the EIA procedure automatically includes all projects except those that have been explicitly "excluded". It is important to notice that this approach has a significant implication for process work loads. Based on Article 2 to GR 29/1986, the identification of business or activities subject to EIA should be at the discretion of the Minister or Head of non-departmental government institutions in charge of the relevant activity. However, only the Department of Public Work has screening guidelines in place. The responsibility was transferred to the EIMA in 1993. Scheduling of types of businesses or activities requiring EIA are being prepared by the EIMA by taking account of opinions and recommendations of the A.G.A.. In July 1991, a booklet "A Guide to Environmental Assessment in Indonesia" was published by the EIMA (*EIMA 1992b*). The booklet provides a synoptic description of the EIA process for use by project proponents, consultants, foreign investors and so on.

National and provincial environmental quality standards are used in the EIA process to provide guidance on determining impact significance and provide project design criteria. In Indonesia, standards specific to water, air and noise have been established, or are being developed. The first ambient environmental quality criteria were set out for surface waters, air and marine waters in the Ministerial Decree No.2 of 1988 of the Ministry of State for Population and the Environment. This Ministerial Decree was upgraded in Government Regulation No.20 of 1990 which also includes the necessary components of a water pollution control system. This regulation also specifies that terms and conditions in the environmental monitoring and management plans will be incorporated into the hindrance ordinance permit. It provides the legal basis of linkage between environmental management and monitoring plans and the permitting system.

6.5 EIA PROCEDURE

The formal EIA procedures established in 1986 through GR 29/1986 were found after few years of implementing the EIA process, to give rise to difficulties and shortcomings. A revised EIA regulation, GR 51/1993, was therefore introduced which is discussed in the following section.

6.5.1 EIA PROCEDURE IN GR 29/1986

The first step in the EIA procedure is screening, which determines whether a particular type of project is exempted from EIA. For projects of public sectors and private projects (non-domestic investment and non-foreign investment), the proposed projects are screened by the responsible A.G.A.. Private projects (domestic and foreign investments) requiring an investment permit are screened by the Investment Coordinating Board using EIA Technical Guidelines issued by the agency responsible for the proposed project activity. If EIA is required for the proposed project, the Investment Coordinating Board will direct the case to the responsible EIA Commission.

The scoping of impacts is conducted by the A.G.A. It should take place in an inter-disciplinary forum involving the proponent, consultants, and all relevant government agencies and public interests, but currently this seldom happens. The initial decision on screening and scoping will be one of the following (*EIMA 1992b*): i) project is exempt from the EIA process, ii) project is unacceptable as proposed, iii) The potential impacts of a project are unknown, thus the proponent will be asked to prepare a Preliminary Environmental Information, and iv) there are thought to be important impacts associated with the project, thus the proponent will be asked to prepare the terms of reference (TOR) for an Environmental Impact Analysis.

If Preliminary Environmental Information is required, the proponent prepares this report and submits it to the responsible EIA Commission for review. The responsible A.G.A.

will consult the Minister of the Population and the Environment and the Minister or Head of the non-department government institutions concerned if the proposed project site is considered to have the possibility of causing a conflict of interests between environmental management sectors. If the A.G.A. identifies potentially significant impacts in the Preliminary Environmental Information it will require project proponents to prepare the TOR for an Environmental Impact Analysis. Alternatively if the impacts are regarded as insignificant and can be mitigated or managed the proposal can proceed to prepare Environmental Management and Monitoring Plans. These decisions will be made by the A.G.A. in 30 days and if a decision is not made at the end of the time limit the proponent can submit a request for a decision to the Minister of State for Population and the Environment no more than 14 days following the expiry date. The Minister should make a decision on the Preliminary Environmental Information within 30 days.

The TOR for Environmental Impact Analysis is prepared by the proponent together with the A.G.A. and approved by the EIA Commission. Based on the TOR, an Environmental Impact Analysis is prepared and submitted to the A.G.A.. This document will be reviewed by the EIA Commission. The Commission has 90 days to decide either to reject the project due to unacceptable associated impact or to allow the project to proceed with the preparation of Environmental Management and Environmental Monitoring Plans. If the A.G.A. fails to give a decision on the Environmental Impact Analysis, approval of the Environmental Impact Analysis is considered to have been given. The decision on the Environmental Impact Analysis should be announced through the mass media or notice board by the A.G.A.. The proponent may be asked to revise the Environmental Impact Analysis due to lack of comprehensiveness. The proponent may appeal to an authority superior to the responsible A.G.A. against the rejection of the EIA of the proposed project. After hearing the opinions of the Ministry of State for Population and the Environment (now EIMA) on the case, the authority superior to the responsible A.G.A. makes the final decision on the case within 30 days.

Once the Preliminary Environmental Information or Environmental Impact Analysis is approved, the proponent will be asked to submit the proposed Environmental Management and Environmental Monitoring Plans immediately. The responsible EIA Commission has 30 days to review these two documents. The Preliminary Environmental Information, Environmental Impact Analysis and proposed Environmental Management and Environmental Monitoring Plans should be made public. The members of the public may offer suggestions and ideas orally or in writing to the responsible EIA Commission before the final decisions on the proposed project are made. Final decisions on projects reviewed at national level are made by sectoral Ministers, based on the recommendations of the Central EIA Commissions. For projects reviewed at the provincial level, the Governor will make the final decision based on the recommendations of the Regional EIA Commission. Copies of the EIA reports will be sent to the Ministry of State for Population and the Environment, relevant agencies and the appropriate provincial government. The flow chart for the EIA procedure stipulated in GR 29/1986 is illustrated in **Figure 6.2**.

6.5.2 EIA PROCEDURE IN GR 51/1993

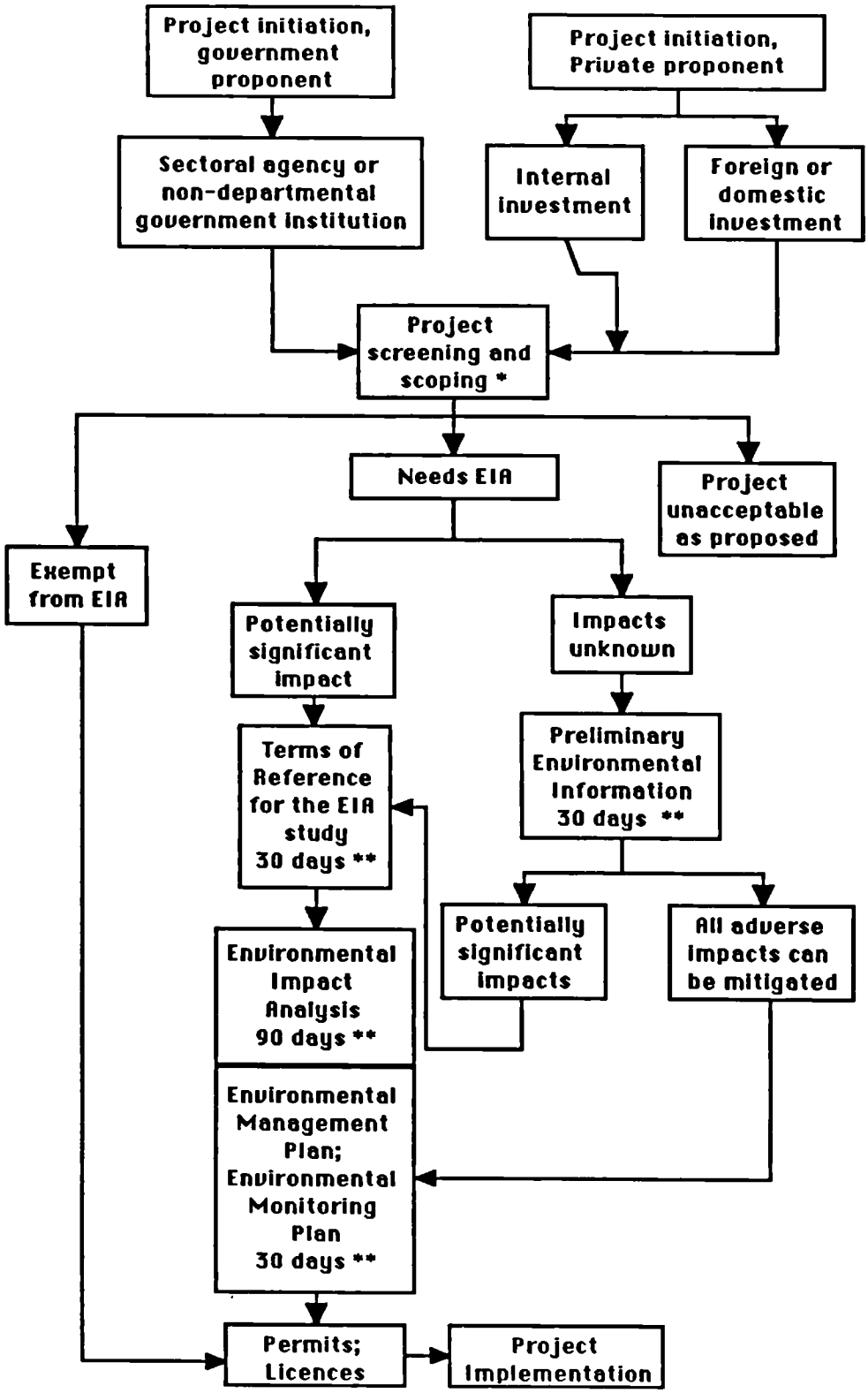
In order to improve the effectiveness and efficiency of the EIA process and reduce the unnecessary burden, a simpler EIA procedure was introduced through the promulgation of GR 51/1993. The screening criteria are being prepared by the EIMA which will be used by sectoral departments, non-departmental government institutions and provincial governments. The screening process is carried out by the responsible EIA Commission. A proposal for preparing a Prospectus, a new document, has been suggested to serve as an entering document to the screening process. The EIMA is currently preparing guidelines for "Prospectus". The requirement of Preliminary Environmental Information in GR 29/1986 has been annulled.

Once an EIA required for the proposed project is confirmed, the proponent prepares the TOR for an EIA and submits it to the responsible EIA Commission for approval. The EIA Commission has 12 working days to review the TOR.

The proponent then prepares the reports on the EIA and the Environmental Management and Environmental Monitoring Plans, and submits them to the A.G.A.. The proposed activity should be announced by means of the mass media or notice board to inform the public. These documents should be disclosed to the public by the A.G.A.. The responsible EIA Commission has 45 working days to review these documents. The proponent may be asked to revise these reports owing to lack of comprehensiveness. The public may forward their representations on the proposed project to the EIA Commission. However, the procedures for public notification, inspection, access to EIA documents and submitting their representations, have not been specified.

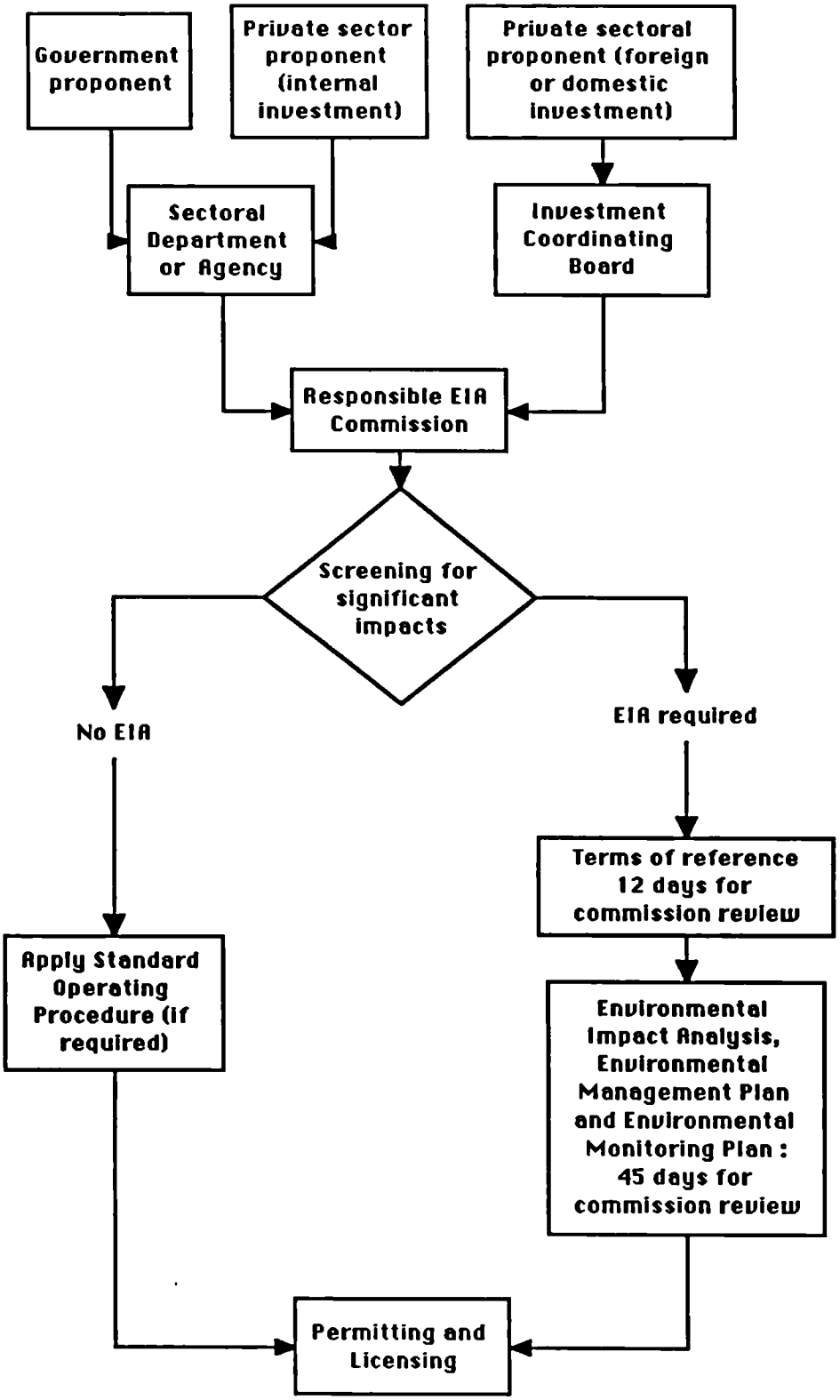
Final decisions will be given by the A.G.A. based on the recommendations of the EIA Commission. The operating permit is granted to the proponents after the Environmental Management and Environmental Monitoring Plans are implemented. The approval of the EIA documents is considered to be given if the A.G.A. fails to make a decision within the time limit. Copies of the EIA reports will be sent to the EIMA, relevant agencies and the appropriate local governments. The proponent may appeal to an authority superior to the A.G.A. within 14 days after the rejection of the proposed project given by the A.G.A.. The authority superior to the A.G.A. should make a decision within 30 days by taking into account the opinions of the EIMA. The EIA procedure stipulated in GR 51/1993 is illustrated in **Figure 6.3**.

Figure 6.2 The flow chart for the EIA procedure in Governmental Regulation No.29 of 1986 (source: "A Guide to Environmental Assessment in Indonesia")



** : done by sectoral agency or non-departmental government institutions*
*** : Permissible review time prior to a decision*

Figure 6.3 The flow chart for the EIA procedure in Government Regulation No.51 of 1993 (source : "A Guide to EIA in Indonesia 1994")



6.6 ROLE OF ACTORS INVOLVED IN THE EIA PROCEDURE

6.6.1 PROJECT PROPONENTS AND HIRED CONSULTANTS

Project proponents, both public sector and private sector, are responsible for preparing and submitting EIA reports for their proposed projects to meet the legislative requirements and to implement environmental management and environmental monitoring plans that result from the EIA process. In most of the EIA cases, consultants are hired by the proponents to conduct EIA studies and prepare relevant reports for the proposed activities.

6.6.2 AUTHORISED GOVERNMENT AUTHORITIES (A.G.A.)

As mandated in the Act 4/1982, the sectoral departments and non-departmental governmental institutions are responsible for the integrated implementation of the national policies on environmental management, in relation to their duties. EIA is one component of such a policy. In the EIA process, the departments and non-departmental government institutions are considered as the A.G.A. whose duties are clearly stipulated in GR 29/1986. The Ministers, Heads or Governors of the A.G.A. organise their own EIA Commissions to manage the EIA procedure and make the final decisions on the proposed projects under their jurisdiction, by considering the EIA review comments of the EIA Commissions. The A.G.A. may provide financial assistance to the economically less privileged proponents for the preparation of the EIA by virtue of GR 29/1986. This duty has been transferred to the Minister/Head of the EIMA in GR 51/1993. The A.G.A. are briefly described as follows.

i. EIMA: EIMA has an overall responsibility in the supervision and guidance of the EIA system. According to GR 51/1993, the EIMA organises an EIA Commission to assess multi-sectoral projects, which forwards their recommendations to the Minister of State for Environment for the final decisions.

ii. Sectoral departments and non-departmental government institutions: they organise EIA Commissions to manage the EIA process. There are several non-departmental government institutions, for example the Civil Service Administration Board, the National Development Planning Board, and the Institute of Science.

iii. Provincial Government: the Provincial Governments are required to establish EIA Commissions to evaluate EIA reports delegated by the central government agencies and make final decisions on these cases. It is the Government's intention to decentralise EIA to the provincial level. But in practice, it is difficult due to lack of clear guidance to specify what projects should be delegated to Provincial Governments. A Guideline is being prepared by the EIMA.

6.6.3 EIA COMMISSIONS

The EIA Commissions have been organised both at central and regional levels. The functions of the EIA Commissions are stipulated in Ministerial Decree No.53/MENKLH/6/1987 Guidelines for Commission Membership, Composition and Work Procedure (*Ministry of State for Population and the Environment 1987b*). At present, 14 Central EIA Commissions and 27 Regional EIA Commissions have been set up.

The Central EIA Commissions have the following tasks including: i) prepare the EIA Technical Guidelines, ii) evaluate Preliminary Environmental Information, iii) set out the TOR for the Environmental Impact Analysis, iv) evaluate the Environmental Impact Analysis, the proposed Environmental Management Plan and Environmental Monitoring Plan, v) expedite the issuance of decisions concerning the Preliminary Environmental Information, Environmental Impact Analysis and the proposed Environmental Management Plan and Environmental Monitoring Plan, and vi) carry out any other tasks assigned by the A.G.A. (*Government of Indonesia, 1986*).

Two types of projects will be reviewed by the Central EIA Commissions: those which are funded by the State budget for activities conducted by related institutions and those submitted by the private sector which have their business permits from institutions at the central level. The members of the Central EIA Commission are classified into two categories, the permanent members and temporary members. The memberships of the EIA Commissions have been expanded since GR 51/1993 came into force (*Government of Indonesia 1993b*). The detailed list of the Commission members is shown in **Table 6.1**. The expenses of the EIA Commissions can be charged to the budget of the A.G.A.. However, project proponents are currently responsible for paying the costs of the EIA Commissions.

The Regional EIA Commissions are established by the Provincial Governments. They have tasks similar to those of the Central EIA Commissions, except preparing EIA Technical Guidelines. The Regional EIA Commissions evaluate the EIA documents for any activity which is funded by the provincial budget, the state budget when coordination of the activity plan is transferred to the province, and the private sector which has its business permit from institutions at the provincial level. Like the Central EIA Commissions, the memberships of the Regional EIA Commission have expanded since 1993. The details are shown in **Table 6.2**.

Both Central and Regional EIA Commissions may be assisted by Technical Teams assigned to evaluate the EIA documents. These Technical Teams are internal-agency committees and formed on a project-by-project basis. According to the study by Dick and Bailey (1992), by April 1991 EIA Commissions have been established in every province except one, but less than half had approved any EIA reports. One of the main reasons why the provincial commissions are not very active is that the central commissions are not yet delegating many projects to their regional counterparts.

Table 6.1 The membership of the central EIA commission

	GR 29 of 1986	GR 51 of 1993
Set up by	Each sectoral minister and head of non-departmental government institutions	Each sectoral minister and head of non-departmental government institutions
Permanent members	• Ministry of Home Affairs • Environmental Impact Management Agency • University or other experts • Agency representatives	• Ministry of Home Affairs • Environmental Impact Management Agency • University or other experts • Agency representatives • Investment Coordinating Board • National Land Agency
Temporary members	relevant departments and/or non-departmental government institutions concerned and other members as deemed necessary	relevant departments and/or non-departmental government institutions concerned, non-governmental organisations, and other members as deemed necessary

(sources: GR 29/1986 and GR 51/1993)
NB : GR: Government Regulation

Table 6.2 The membership of the regional EIA commission

	GR 29 of 1986	GR of 51 of 1993
Set up by	Governor	Governor
Permanent members	• Provincial Office of the State Ministry of the Environment • Provincial Development Planning Board • Environmental Study Centre in the province	• Provincial Office of the State Ministry of the Environment • Provincial Development Planning Board • Environmental Study Centre in the province • Provincial Investment Coordinating Board • Provincial Office of the National Land Agency • Regional Environmental Impact Management Agency
Temporary members	• relevant government agency which has a structural authority in the province • Provincial Investment Coordinating Board • other members as deemed necessary	• governmental agencies supervising the relevant sectors in the province • non-governmental organisations • other members as deemed necessary

(source: GR 29 of 1986 and GR 51 of 1993)
NB: GR: Government Regulation

6.6.4 INVESTMENT COORDINATING BOARD

If proposed projects from the private sectors involve domestic or foreign investment, the proponents should apply to the Investment Coordinating Board for permits. The Investment Coordinating Board has two important roles in relation to the EIA process. The first one is to screen investment applications to determine whether or not the proposed projects require EIA. If yes, the Investment Coordinating Board will direct the proponents to the appropriate A.G.A.. The Investment Coordinating Board has its own EIA Technical Team to carry out screening. The second one is to issue investment permits after EIA approval.

6.6.5 THE PUBLIC AND NON-GOVERNMENTAL ORGANISATIONS (NGOs)

The role of NGOs in environmental management is legitimised in the Act 4/1982. Specific to EIA, the NGOs are invited to participate on EIA Commissions as temporary members. The channels for public involvement in the EIA procedure are incorporated through GR 29/1986. The EIA reports should be made public. The public can provide opinions orally or in writing to the appropriate EIA Commission before final decisions are made.

6.6.6 THE AUTHORITY SUPERIOR TO THE A.G.A.

The authority superior to the A.G.A. is responsible for resolving EIA appeals. The authority superior to the sectoral Minister or Head of non-departmental government institutions is the President. For projects under Governors' authority, the higher authorities will be the Ministers or Heads of non-departmental government institutions having jurisdiction over relevant activities or the Chairman of the Investment Coordinating Board for foreign and domestic investment activities (*Government of Indonesia 1993b*).

6.7 EIA COMPLIANCE MONITORING AND ENFORCEMENT

Permit and license conditions provide the means by which the environmental management and monitoring requirements developed in the EIA process can be made legally enforceable. Although Article 2 to GR 29/1986 stipulates that the decision on granting a permit can only be made after the Environmental Management and Environmental Monitoring Plans have been approved by the A.G.A., there is currently no environmental permit or licence in Indonesia. Environmental conditions are, in some form, incorporated into one or more of the existing permits, including investment, location, activity and nuisance. The linkage between the permit/license system and the EIA implementation is weak and not clear. This has resulted in difficulties while implementing EIA monitoring and follow-up in practice. To overcome this shortcoming, Article 2 to GR 51/1993 clearly stipulates that operating permits can only be issued after the approved Environmental Management and Environmental Monitoring Plans are implemented.

By virtue of Article 25 to GR 51/1993, the EIMA shall use EIA reports as a basis to examine:

i. environmental monitoring reports and the evaluation of those results, conducted by the proponent in accordance with the Environmental Management and Environmental Monitoring Plans,
ii. environmental monitoring reports and the evaluation of those results, conducted by the relevant governmental agencies in accordance with the Environmental Management and Environmental Monitoring Plans,
iii. a report on the supervision of implementation of Environmental Management and Environmental Monitoring Plans as carried out by the A.G.A..

After analysing the aforementioned reports, the EIMA will forward the supervision reports to the appropriate A.G.A. in order to improve the work of EIA monitoring and follow-up. At present, the A.G.A. are responsible for carrying out the work of EIA monitoring and follow-up on the implementation of Environmental Management and Environmental Monitoring Plans for projects under their jurisdiction. For multi-sectoral

projects, the EIMA carries out the supervision of implementation of the Environmental Management and Environmental Monitoring Plans in the field. The costs of environmental management and monitoring are borne by the proponent, while the costs of supervision of the proponents are borne by the responsible A.G.A.. Although the legal basis for monitoring the progress of EIA implementation has been established, this work is currently not being done in a regular and efficient manner in practice. Nevertheless, the EIMA has an intention to set up a programme for EIA audit to monitor and follow-up the implementation of EIA approvals.

6.8 EIA RELATED REPORTS

Several EIA reports are required to be prepared, reviewed and approved throughout the EIA procedure. By virtue of GR 29/1986, five documents are required for proposed projects subject to EIA, including Preliminary Environmental Information, Terms of Reference (TOR), Environmental Impact Analysis, proposed Environmental Management and Environmental Monitoring Plans. For EIA of existing projects, Preliminary Environmental Evaluation, TOR, Environmental Evaluation Study, and proposed Environmental Management Plan and Environmental Monitoring Plan, are required. When GR 51/1993 came into effect, the requirements of Preliminary Environmental Information for proposed projects and EIA of existing projects were abolished.

Although the Central EIA Commissions are required to provide monthly status reports and the Regional EIA Commissions are required to provide bi-annual status reports respectively, to the EIMA on their progress in EIA document reviews, these reports have not been submitted regularly, nor have followed a consistent reporting format, despite the fact that EIA Technical Teams agreed to a format in 1990. It is difficult to have a clean picture on the current status of EIA implementation. Dick and Bailey (1992) indicated that, between 1991 and 1992, there have almost 1,600 documents been approved by the

Central EIA Commissions, 75% of which are EIAs for proposed projects and 25% are EIAs for existing projects. The reports approved by the Department of Mines and Energy account for 40% of the estimated total. The other three active Commissions are the Department of Public Works, Industry and Forestry, each of which had approved more than 200 reports by November 1991. For EIA reports approved by the Regional EIA Commissions, a total of 727 EIA documents were reported up to July, 1991. The most active Commissions are the Java Provinces of DKI Jakarta (45% of the total regional approvals), East Java (25%) and West Java (14%). The Java Provinces as a whole accounts 88% of the total report approvals.

A workshop was organised by the EIMA in June 1990, at which an independent team evaluated six already-approved documents of documents for proposed projects and EIA for existing projects. That work was a major quality control initiative carried out by the EIMA.

6.9 AVAILABILITY OF RESOURCES FOR EIA IMPLEMENTATION

6.9.1 HUMAN RESOURCES

6.9.1.1 EIA Training

The development and implementation of an EIA system create demands for a variety of trained individuals. One means to meet these needs is through specifically designed training programmes. As early as the 1980's, environmental study centres emerged at Indonesia Universities and started offering EIA training courses. These works were often supplemented with extra-national assistance. Senior Indonesian participants were provided, through Environmental Management Development in Indonesia Project (EMDI), with EIA training in Canada in 1984 and 1985 (*Ross 1992*). After GR 29/1986

came into effect in 1987, the Ministry of State for Population and the Environment had been given the role of developing and coordinating EIA training. These courses were usually delivered by environmental study centres, with instructors from Universities, Government and private sector. When the EIMA came into operation in 1990, the task of developing and coordinating EIA training courses has been transferred to the Training Sub-Directorate of the EIMA. The training courses continue to be delivered by environmental study centres, government departments and more recently by NGOs. As mentioned in **Section 6.2.2**, a key component of the Third EMDI is to support the development of the EIA process in Indonesia. There are also continued inputs from Canada on the development and promotion of EIA training.

By the late 1980's, two types of EIA training courses, EIA A and B, were developed and implemented. EIA A was an introductory three week course which provided an overview of ecological and cultural resources, project impacts and the EIA procedures. EIA B was a three month course which was designed to train individuals on how to coordinate and prepare EIA documents. At that time, there were widespread opinions that the materials were too theoretical and the courses were too long (*Morgan 1993*). In 1990, a revision of EIA A and B Courses was completed and the EIA training courses currently offered were developed. These courses consist of following:

i. EIA A Course: a 10 days course for the introduction to EIA,
ii. EIA B Course: a six week course intended to develop EIA practitioners,
iii. EIA C Course: a five days course intended for evaluators of EIA documents.

Moreover, in order to improve the knowledge and capabilities of conducting EIA by Indonesian consultants, EIA training programmes and workshops have been organised for consultants by the National Association of Indonesian Consultants with assistance from EMDI advisor to the Association since 1988 (*Villamers and Kasnaedi 992*). All these training courses are held from time to time as necessary. It is estimated that in total about 5,000 to 10,000 personnel completed EIA training courses. Most of them were from the public sector.

6.9.1.2 Quality Control Over Consultants

The legal basis of establishing an EIA consultant registration system was provided in Article 30 to GR 29/1986 which states "the qualification of experts in EIA and the granting of a licence thereto and the registration of such persons will be decided upon by the Minster in charge of environmental management". Despite the existence of this provision, no EIA consultant registration or licensing has ever taken place. The closest thing to ensuring a qualification and certification has been a strong recommendation by the EIMA that people wishing to prepare EIA related documents should be graduates from the EIA B Course or have equivalent professional training.

Given the wide variation in quality among EIA courses, even this degree of certification may have little relevance to process quality. In the survey conducted by Villamers and Kuanaedi (1992), the results showed that there were approximately 19 experienced EIA consulting firms in Indonesia in 1988. All of them were in Java, of which 15 were in Jakarta, two in Central Java and two in East Java. Criticisms have been raised that the EIMA had not established a formal system of consultant registration by 1993 and the provision was annulled when the GR 51/1993 came into effect.

6.9.2 PHYSICAL RESOURCES

In April 1988, the EIA Section in the Ministry of State for Population and the Environment published the first "Status Report" of EIA (*Morrison 1992*). This report covered several aspects centring on the implementation of the EIA system, including the establishment of the EIA Commissions by ministerial decree, frequency of Commission meetings, the preparation of EIA Technical Guidelines, the results of EIA training, and the number and types of projects reviewed. An "EIA Tracking system" has been under development since 1989, but it is still not operational by 1994. Possible factors causing this slow progress have been identified. For examples, status reports from the EIA Commissions are not submitted on a regular basis; status reports submitted did not follow

a consistent format; no formalised service request to the staff in the Ministry of State for Population and the Environment (now Ministry of State for Environment) who have to date carried out the programming; and the roles and responsibilities of the information sections of the Ministry of State for Environment and the EIMA overlap and are not yet defined (*Dick and Bailey 1992*). It is necessary for the Head of the EIMA to have regular and updated information about the status of EIA so that he can report on the progress of EIA implementation to the President. It is also important for all actors involved in the EIA process to be aware of the status of EIA projects so that they can participate and provide timely inputs. The system can also be used by the EIMA to ensure that the EIA system is being implemented efficiently and legally.

Currently, no central environmental database has been established by the Government although a database of EIA reports and a national repository for EIA reports have been set up. The technology of GIS has been applied by the Indonesian Government in spatial planning through the assistance of EMDI. At the national level, there are some agencies using GIS for land and resource management. The Ministry of State for Environment has the duty of promoting the ability of local governments to apply GIS technology in their spatial planning. With respect to the GIS training, most of the cases were "on-the-job" training. The Ministry of State for Environment has published the "GIS Journal" as a forum to share the information and database.

6.10 CASE STUDY: EIA FOR TAMPUR HYDROPOWER SCHEME

6.10.1 BACKGROUND

The Tampur Hydropower Scheme was identified during the hydropower potential study of Sumatra conducted in 1982 (*Perusahaan Umum Listrik Negara 1993a*). A feasibility study of the project was undertaken by Nippon Koei and P.T. Indra Karya during the period of 1983-1984. The final Feasibility Study Report was completed in November

1984. As a result, the Perusahaan Umum Listrik Negara (PLN) proceeded with the scheme and implemented several power projects in Sumatra, including the 260 MW Bukit Asam coal fired power station, 380 MW Belawan gas fired combined cycle plant and the 114 MW Kota Panjang and 175 MW Singkarak hydro-electric projects. Due to the rising demand for electricity, the PLN prepared to construct additional new generating stations including the Tampur project in 1991. This new proposed project was to be funded by the Asian Development Bank (A.D.B.). An EIA of the proposed project was required by the Bank before the approval of funding could be given.

6.10.2 PROJECT DESCRIPTION

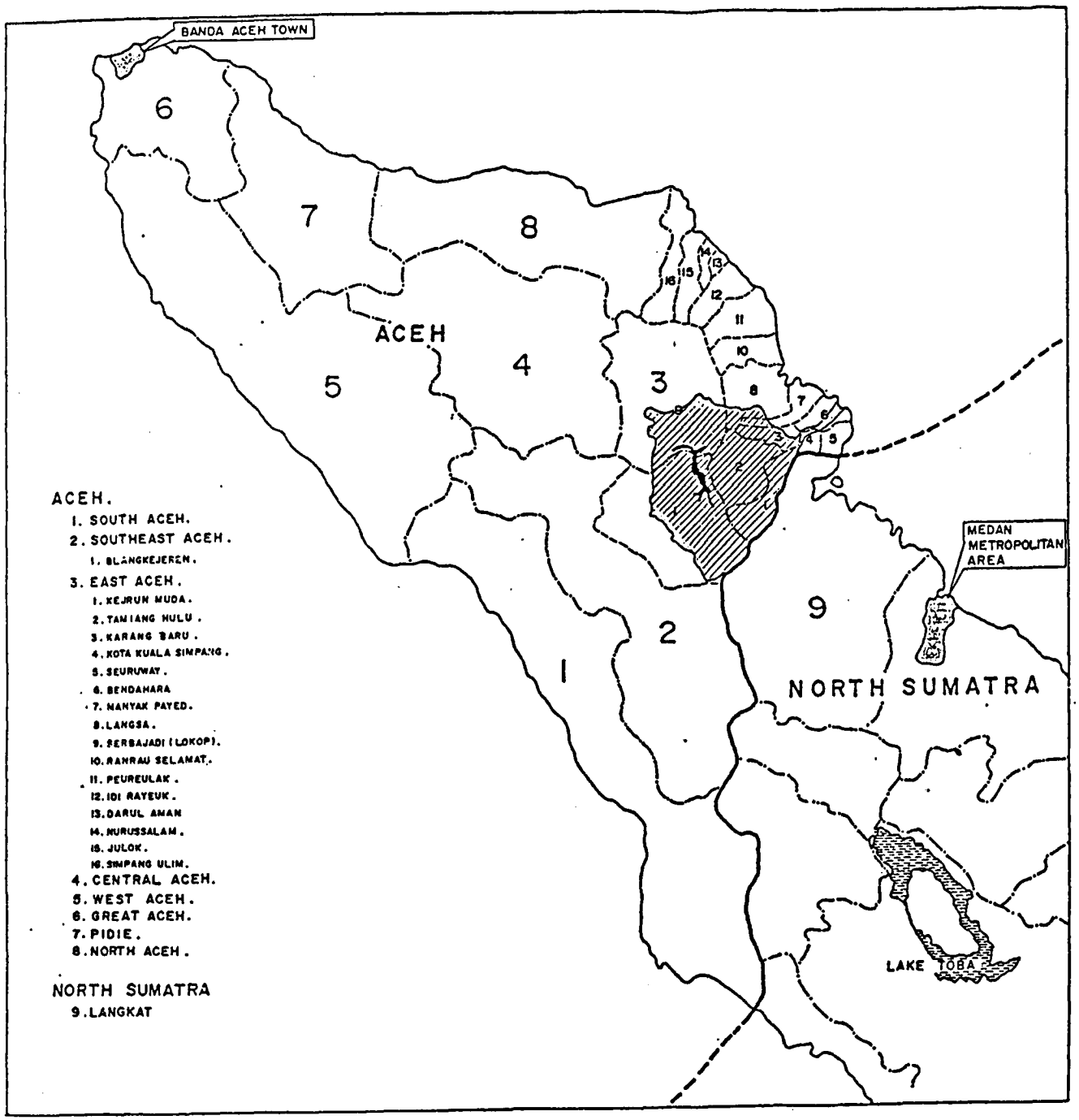
The proposed project consists of an embankment dam on the Tampur River, located in a gorge some 10 kms downstream of the small village of Lesten (see **Figure 6.4**). A surface powerhouse and a switchyard would be located below the dam, from which 150 KV transmission lines lead off to join the existing grid at Langsa, 55 kms to the north-west, some 70 kms of access road would also be built associated with the scheme. In the original scheme studied in 1983-1984, the proposed Tampur dam was 175 m high with a capacity of 428 MW. During the EIA study in 1992, it became evident that these parameters needed to be revised in the light of current cost/benefit level. As a consequence, the proposed dam was scaled down to 155 m with a capacity of 330 MW. This modification also assisted in reducing environmental impacts.

6.10.3 EIA STUDY

The Asian Development Bank appointed consultants to conduct the EIA study of the Tampur project in February 1992. In June 1992, the scope of the services by the consultants was expanded to cover re-optimisation of the project size to take account of changes in principle parameters since the date of the Feasibility Study. The study commenced in March 1993. The Tampur EIA process had four distinct phases: i) impact

identification through scoping, ii) collection of baseline data, iii) impact prediction and measurements, and iv) identification of mitigating measures and monitoring requirements (*Perusahaan Umum Listrik Negara 1993b*).

Unlike the Indonesia EIA procedure, the A.D.B.'s requirement for conducting the EIA study stipulates that the consultants prepare scoping sessions or public hearings. Moreover, under the current Indonesian EIA procedure the TOR for an EIA is proposed by the proponent and approved by the responsible EIA Commission. In this case, the TOR for the Tampur Hydropower EIA study was issued by the Bank without a formal review and/or approval from the EIA Commission of the Ministry of Mines and Energy. In the scoping sessions, the consultants received comments in determining significant impacts from the proponent, NGOs, national, provincial and district authorities. Note and/or minutes of these meetings had been reported in the various progress reports to the Bank and PLN. Based on this TOR, the consultants collected a wide variety of baseline data on the physical, natural and socio-cultural environment. Impact prediction and measurements were then carried out. The relevant EIA General and Technical Guidelines of Indonesia were applied in these exercises. Feasible monitoring programmes and mitigating measures were proposed. Public hearings were held in Pinding on 24th and 25th August 1993 to discuss issues of resettlement with the two affected communities, Lesten and Pinding. The World Wide Fund for Nature and Indonesia Environmental Forum were consulted about the possible impacts and the proposed mitigation measures.



SPATIAL BOUNDARIES OF PROJECT

0 18 36 54 72 90 Km
SCALE

N

LEGEND

ACEH Province

3 Kabupaten (regency).

8 Kecamatan (district).

Town district.

Project area boundary Inundation are + Dam site.

Ecological boundary Tamiang Catchment.

Figure 6.4 The project site of the Tampur Hydropower Scheme

6.10.4 DISCUSSION

In this case, the Asian Development Bank (an international donor agency) had apparently played an important role and dominated the EIA process. The EIA procedure adopted for the Tampur project was not entirely the same as that of the Indonesian EIA system. The EIA Commission of the Ministry of Mines and Energy had no say on the TOR for the Tampur EIA. The scoping sessions which proceeded were not specified in the Indonesian EIA procedure. Moreover, the public hearings held were also outside the scope of the existing procedure. Nevertheless, these two activities did provide channels for early and timely involvement of the affected parties in the EIA process. A scaled down version of the original proposal arose from the cost/benefit consideration initially. It was later supported by the evidence of environmental benefits. It is debatable whether this modification would have been initiated from the point of view of environmental concern alone.

6.11 THE LINKAGE OF EIA AND SPATIAL PLANNING

6.11.1 THE RELATIONSHIP BETWEEN EIA AND SPATIAL PLANNING

Act 4/1982 had an underlying theme of sustainable development. To achieve this goal, it is clear that integrated management must consider not only natural resources in the integration process, but also the balance integration of environmental health, economic renewal and community viability (*Bailey 1993*). The linkage between EIA and regional spatial planning was created with the passage of Act No.24 of 1992, "Spatial Use Management Act" (*Government of Indonesia 1992*). Both Article 3 and 10 of Act 24/1992 state that one of the objectives of spatial use management is to prevent and overcome negative environmental impacts. This can be accomplished through an explicit incorporation of impact assessment in spatial planning. Moreover, Article 1 (5) to GR 51/1993 states that " EIA Regional" requires EIA for proposed activities located in a

single ecosystem type in a development planning area as defined by the regional spatial plans, which involves more than one A.G.A. as part of the decision-making process. This new Act 24/1992 provides a mechanism for the identification of land use management, objectives, limitation, issues and concerns, and providing a context for project assessment through the process. Several benefits are expected to result from spatial planning to the EIA process (*Bailey 1993*).

i. guidance to the selection of the project site,
ii. improvement of the ability to scope impact,
iii. reduce uncertainty about impact significance,
iv. reduce data collection requirement,
v. deliver improvement in the determination of project suitability and acceptability,
vi. provide guidance to future development of a geographic area.

6.11.2 THE TYPES AND PREPARATION OF SPATIAL PLANS

In Indonesia, spatial plans at national and regional levels have been done in the past and are continuing. These spatial plans include: National Strategy for Spatial Pattern Development, Provincial Spatial Structure Plan, and General Plan for Spatial Arrangement for District/Municipality (*Taylor 1993*). These plans are being prepared with some guidelines from national agencies, such as the National Development Planning Board, the Directorate of Human Settlement in the Ministry of Public Works; at the provincial and regional levels through the Provincial or District Development Planning Board, and the National Land Agency. This model was in place prior to the enactment of the Act 24/1992, and influenced its development. Based on Act 24/1992, three types of spatial plans should be prepared, including National Spatial Plan, Province Level I Spatial Plan and District/Municipality Level II Spatial Plan. The Act directs that spatial use management considers that the management of diverse natural resources of lands, sea and air should be undertaken in a coordinated and integrated way in order to fulfil the goals of sustainable development.

A coordination team for National Spatial Planning Management has been established. This team is chaired by the Head of the National Development Planning Board and the Minister of State for Environment is the Vice-Chair. It is not yet announced which Minister will be responsible for spatial use management. However, the organisational structure of the coordination team indicates that the National Development Planning Board and the Ministry of State for Environment have important roles. Currently, EIA Commissions at the central level do not consist of representatives from the National Development Planning Board and the Ministry of State for Environment. Options need to be considered in order to promote the integration of spatial planning and EIA at the national level. By contrast, spatial planning and EIA are closer linked at the local levels. Spatial plans at the provincial level are the responsibility of Provincial Development Planning Board. Regional EIA Commissions are chaired by the Head of the Provincial Development Planning Board and the representative of the Provincial Office of the State Ministry of the Environment is one of the permanent members. The Provincial Development Planning Board thus appears to be the linkage agency at the provincial level and regional levels.

The Integrated Regional Environmental Development Program (INREDEP) was initiated by the Ministry of State for Population and the Environment (now Ministry of State for Environment) with technical assistance from the CIDA through EMDI. One of the objectives of the INREDEP is to help provincial governments to incorporate the objectives of the new Act 24/1992 into their spatial planning based on the national policy (*Taylor 1993*).

6.12 EFFECTIVENESS OF THE EIA SYSTEM

6.12.1 ACHIEVEMENTS AND SHORTCOMINGS OF THE CURRENT SYSTEM

Environmental Policies, Regulations and Guidelines

Unlike some countries where EIA is implemented through administrative arrangements, the legal basis for the execution of the EIA process in Indonesia has been provided though the Government's regulations since 1987. The EIA regulation was revised in 1993 in the light of experience, in which several shortcomings and difficulties were remedied and/or resolved (1.2 - 1; 2.1 - 3)[g] . For instance, the requirement for conducting EIA of existing projects stipulated in GR 29/1986, was later found not feasible. Lessons have been learned by the Government and this requirement was annulled in GR 51/1993 (2.1 - 41). The scope of project level EIA has been expanded to cover regional spatial planning in the 1993 Amendments to the EIA regulations (2.1 - 2). This ensures that the integration of resource utilisation, impact management, economic renewal and regional development, is achieved in a more sustainable way (1.2 - 9). The concept of environmental management and protection was incorporated in the 1945 Indonesian Constitution. This concept and the statement of sustainable development were later integrated into the national environmental policies in the early 1970's (2.1 - 1).

By virtue of the EIA regulations, the EIA process automatically includes all projects except those that have been explicitly "excluded". This approach has caused some confusion and complicated situations and enormous work loads were created, which place a heavy burden on the responsible A.G.A.. Moreover, the screening procedure is not specified and the participating agencies are unclear about their power to permit exemption (2.1 - 4, 16). Currently, screening guidelines and guidelines which specify central and regional projects are being prepared by the EIMA. A number of EIA General and

[g] As in Chapter 1 and 2, these notations refer to the components and elements listed in Table 1.2 and 2.1. As before, the components and elements are referred to by table and item number (s), e.g. 1.2 - 1.

Technical Guidelines were issued by the Ministry of State for Population and the Environment, sectoral departments and non-departmental government institutions in 1987. These guidelines deal with only procedural matters and give no guidance to proponents and EIA Commissions on what principles and objectives they are to be concerned with (2.1 - 5, 7). Although the format and contents of the EIA related documents have been clearly defined, the assessment of alternatives (including no-action strategy) is absent from the requirements (1.2 - 5; 2.1 - 6). The legal basis for EIA appeals, compliance monitoring and enforcement, has been incorporated in the EIA regulations, but no detailed guidance or procedures are introduced by the EIMA on how these activities should be carried out (2.1 - 8,9).

Administrative Framework

As a result of the existence of the EIA system, the EIMA (a special agency responsible for impact management) was set up by the Government in 1990. The EIMA has the overall responsibility for EIA implementation, coordination and quality control. This role is facilitated by the EIMA's permanent membership of the Central EIA Commissions (2.1 - 10). Since EIA is a self-assessment process, each of the responsible A.G.A., both at the central and regional levels (2.1 - 12), has organised its own EIA Commission to manage the process. Technical Teams are also formed to assist the operations of the EIA Commissions. The administrative framework for EIA was gradually established in the period of 2-3 years after 1987. Annual meetings of the Regional EIA Commissions have been organised by the EIMA in association with the Ministry of Home Affairs (*EIMA, 1990*) (1.2 - 2; 2.1 - 11).

The degree and effectiveness of interagency coordination and cooperation was poor. In some cases, the responsible EIA Commission approved the EIA reports without consultation with other departments or levels of government concerned (2.1 - 13). Because of it self-assessment nature, the EIA process is vulnerable to the conflict of interests. For example, the primary task of a sectoral department is to advocate and

promote certain types of development activities. Can they really be expected to carry out the evaluation of EIA in an objective way (*Dick and Bailey 1992*)? The EIMA does not have direct control over regional governments which have responsibility by law for a number of pollution control functions and EIA implementation at local level. Furthermore, the central departments, in some cases, are the project proponents and at the same time are the responsible A.G.A. which makes the final decisions Unfortunately, the relevant EIA regulations do not provide the EIMA with a veto power to override inadequate decisions on EIA made by the A.G.A. (2.1 - 14). At present, central departments and non-departmental government institutions do not set up a structural unit specifically responsible for EIA activity. There are some implications of the absence of such a structural unit in each A.G.A.. For instance, EIA is only a part-time job for members of the EIA Commissions, which is additional to their daily routine work. It is difficult to expect that commission members will dedicate sufficient time to carry out EIA review and to participate in training courses. The coordination of EIA activities within the A.G.A. may not be done in an effective and efficient way (2.1 - 15).

EIA Procedure

In 1993, the statutory EIA procedure introduced in 1986 had been modified in the light of experience (1.2 - 3). However, there is no statutory requirement for conducting site visits by the responsible EIA Commission prior to the EIA scoping process. No formal scoping meetings are organised by the responsible EIA Commissions. Currently, the TOR are prepared by the proponents and later approved by the EIA Commission (2.1 - 17). Although the channels for public involvement are provided, these appears at a late stage of the EIA procedure, since the public are informed about the proposed project only after the completed EIA reports have been submitted. An early chance for communication between the proponent and the local community is lost. The public are not given an opportunity to be involved in scoping where they can participate at the early stage of project planning (2.1 - 18, 19, 20).

According to the current EIA procedure, the responsible A.G.A. is required to inform the public by means of the mass media or notice board after receiving the EIA reports. However, no formal procedures have been established for the public and NGOs to access EIA reports at the stage of EIA review (2.1 - 21, 23) and local communities have no opportunities to be involved in the decision-making process (2.1 - 22). The public and relevant authorities have no way to know whether or not their representations have been properly dealt with and taken into consideration, since there is no provision to require the proponent or the responsible A.G.A. to inform the public and relevant agencies about their responses to the representations. There are no channels for the public or relevant agencies to appeal against the adverse decisions given by the responsible A.G.A. (2.1 - 24). Although the time limit for various key steps of the process are stipulated, no explicit provisions define the time period for the public or NGOs to submit their representations at the stage of EIA review (2.1 - 25).

Role of Actors Involved

The role and duties of various participants involved in the EIA process, have been defined in the EIA regulations and guidelines. The EIA review process is carried out by independent EIA Commissions at both central and regional levels. Some of the Regional EIA Commissions are not yet fully operational. One of the main reasons is that the Central EIA Commissions do not delegate many projects to provinces. It is the duty of the Central EIA Commissions to define clearly the respective roles and responsibilities of Central and Regional EIA Commissions, however, not all have done so. Critical information and guidance for Regional EIA Commissions, including Technical Guidelines and the list of project exemption, have never been completed or have never been passed down by sectoral agencies. The mechanisms for coordinating the work of central and regional commissions have yet to be established (1.2 - 4; 2.1 - 26). Although the scope of memberships of the Central EIA Commissions has been expanded in GR 51/1993 to include Investment Coordinating Board and the National Land Agency as permanent members and NGOs as temporary members, it does not clearly stipulate that

the representatives of the appropriate provincial governments and local communities should be invited as temporary members. At the regional level, the EIA Commissions have relied heavily upon the expertise of environmental study centres who are permanent members of the Commissions, in both providing technical advice and reviewing EIA reports. These environmental study centres, in many cases, derive considerable revenue from the preparation of the EIA reports which while strengthening their experience may also lead to a potential conflict of interests if they are placed in the position of evaluating their own reports (2.1 - 27).

In the current system, there is an involvement of the authority superior to the A.G.A. in resolving appeals by the proponents, regarding EIA decisions. Unfortunately, this channel is not available to the public or NGOs who may disagree the EIA decisions given by the A.G.A. (2.1 - 28). No involvement of judicial agencies in handling appeals regarding the legal process of EIA is incorporated in the existing system (2.1 - 29).

EIA Compliance Monitoring and Enforcement

The basic provisions relating to monitoring and follow-up of implementation of the EIA approvals in the fields are included in the EIA regulations, but the past experience has shown that, in reality, the EIA compliance by the proponents and the enforcement by the responsible A.G.A. were poor (1.2 - 6). The EIMA has the overall responsibility for the EIA process, but they have little power and no authority to ensure that the EIA results are implemented (2.1 - 30, 31). There are no formal requirements for the proponents to submit regular monitoring results to the responsible authorities (2.1 - 32). The local communities have no channels to be involved in the EIA compliance monitoring and enforcement programmes (2.1 - 33).

No explicit provisions are in place, which define sanctions or penalties against non-compliance with EIA decisions (2.1 - 34). Although the Government tried to link EIA with the permitting/licensing system through the enactment of GR 29/1986, in order to

make the environmental management and monitoring requirements developed in the EIA process legally enforceable, this linkage was, however, weak and not clear. The situation has been improved in progression to GR 51/1993 which stipulates clearly that operating permits can only be issued after the approved environmental management and monitoring plans are implemented (2.1 - 35).

EIA Implementation in Practice

The interpretation of the meaning, importance and benefits of EIA may not be the same between the EIMA and various responsible A.G.A.. Each sectoral department, non-departmental government institution and provincial government, has it own priorities in relation to activities under its jurisdiction. They have high autonomy in deciding EIA cases which gives a potentially high risk of inconsistent practice of EIA implementation. To worsen this problem, the economic growth is, currently, still a much higher priority than that of environmental protection in the country (1.2 - 7; 2.1 - 36). It was observed that there is a high level of commitment to the idea of EIA, since EIA has been applied to all projects and sensitive areas having significant associated environmental concerns. Most of the participating agencies have institutionalised the planning and review process in their work. However, Morrission (1989) argued that there was a general lack of understanding among senior officials about the necessity of environmental management of activities and developments, and an insufficient level of commitment to EIA implementation (2.1 - 38).

Experience to date has shown that, in many cases, the EIA process usually commences at a late stage of project planning after project site selection, feasibility design and investment decisions have been made (*Dick and Bailey 1992*). Alternatives of project location and design are rarely considered and evaluated which make impact avoidance and management more difficult (2.1 - 39). The governmental administrative systems in Indonesia are hierarchical in structure, and policies and programmes follow a "top-down" process. Policies are largely developed within a system where there is limited direct

public input and influence. Furthermore, a large section of the population lack environmental awareness, including an awareness of EIA (2.1 - 37). There is also seldom any evidence of meaningful attempts by proponents and consultants to consult with the local people potentially affected by the proposed projects about their view and expectation. There are also further obstacles which limit meaningful public input to a document-driven EIA process in Indonesia as literacy rates and education levels are low. Public involvement is further constrained by the strong government influence (2.1 - 40). For example, although environmental NGOs have channels for involvement in the EIA process through the participation in the EIA Commissions, they experience substantial government influence over their ability to challenge government-sponsored or support development projects. They are most successful in informing the public on environmental issues in general (2.1 - 42).

In Article 16 and 17 to Act 4/1982, a system of subsidies and perhaps other forms of assistance are suggested to be made available to economically weak groups once their needs have been identified. Similar provisions are also found in GR 29/1986 and GR 51/1993, relating to EIA. However, in the relevant EIA regulations no further detailed information seems to be provided on how this system of subsidies works. A number of initiatives have been taken by the EIMA in order to improve the quality of EIA reports. One of the activities is the evaluation of the already-approved EIA reports by an independent panel, followed by workshops with proponents, consultants and commission members to discuss the evaluation results. The intention is not to criticise the work of EIA Commissions or consultants, but to provide advice to project proponents, consultants, EIA Commissions, A.G.A., and the EIMA on good EIA practice. In this way, it is expected that the quality of EIA reports can be improved in the light of experience and the EIA experience and knowledge of all parties involved can be strengthened (2.1 - 41). The linkage of EIA and regional spatial planning has been established since 1993. At present, it is still at its early stage of implementation. This linkage at the central level is not clear,

because the Ministry of State for Environment and the National Development Planning Board are currently not the members of the Central EIA Commissions (2.1 - 43).

Availability of Resources

The lack of skilled man-power and sufficient financial resources is a common problem encountered while implementing EIA in many countries, including Indonesia (1.2 - 8; 2.1 - 44, 47). Budgets for the EIA implementation, in many cases, are insufficient. In the A.G.A., the budgets are insufficient to allow for the monitoring of either implementation status or the effectiveness of the EIA process in achieving an acceptable level of environmental management. The current system for EIA training coordinated by the EIMA is both substantial and sophisticated. These courses provide good opportunities to improve and enhance indigenous knowledge on EIA, which also enable good EIA practices to be carried out. These training programmes are usually delivered by environmental study centres at Universities and other institutions, which promote EIA experience and knowledge to various regions across the country (2.1 - 45). In accordance with the provisions in GR 29/1986, a consultant registration system should be set up by the Ministry of State for Population and the Environment and the EIMA. However, no actions have been taken during the period of 1987-1993. There was a concern that even if the EIMA had resources to certify consultants, such certification could probably do little to improve EIA report quality. Therefore, this provision was annulled in the new GR 51/1993. Nevertheless, the lack of technical confidence of consultants and lack of technical expertise and consultant services in many regions, are common problems (2.1 - 46).

No central environmental database has been set up. This has caused significant constraints on the accuracy and effectiveness of EIA studies. Moreover, the formulation of spatial use management plans are also suffering from lack of a comprehensive environmental database. This has negative effects on the quality and accuracy of spatial use management planning (2.1 - 48). In addition, due to the strong sectoral approach each department or

organisation has its own set of information, in respect to the format of data, maps and data classification, which are usually not compatible to each other. Although the technology of GIS and other computing facilities have been applied. Many of these facilities were funded and supplied by foreign donor agencies. Maintenance of these facilities becomes a serious problem due to lack of budget from the Government. Because financial aids come from different sources and countries, each funding agency or country tries to introduce its own concepts, methods or facilities into Indonesia. These concepts, methods or facilities change from time to time. No standardised concepts and methodologies have been developed which are suitable for the Indonesian context (2.1 - 49). All EIA Commissions are required to submit "Status Report" to the EIMA on a regular basis, but this has not been done effectively and in a timely manner. It is also found that the "Status Report" submitted do not follow a consistent format. These have significant implications on the "EIA Tracking System" which is currently being developed. Nevertheless, the EIMA has set up a national repository for and a database of EIA reports (2.1 - 50).

International Interactions

International forces have played an important role in the initiation and development of the Indonesian EIA system from its onset (1.2 - 10). The development of the EIA system has benefited from the assistance of the Canadian International Development Agency through the Environmental Management Development in Indonesia Project since the 1980's. The assistance, in terms of advisorship, technical and financial supports, has improved and promoted the indigenous ability in the implementation of EIA (2.1 - 51). The establishment of the Environmental Management Centre is also a product of the bi-lateral cooperation between Indonesia and Japan (2.1 - 55). From the case study, EIA for Tampur Hydropower Scheme, it was observed that the EIA requirements of the Asian Development Bank have strong influence on the Bank's funded project in Indonesia. Although these requirements were not entirely compatible with the Indonesian EIA procedure, they did create more channels for public participation and make the whole process more transparent (2.1 - 52, 53).

6.12. 2 RECOMMENDATIONS FOR IMPROVEMENT OF THE EIA SYSTEM

Environmental Policies, Regulations and Guidelines

The screening guidelines are currently being prepared by the EIMA for A.G.A.. It is suggested a "scheduled" approach should be adopted which would be more appropriate and could reduce work loads of A.G.A.. All EIA Guidelines need to be up dated following the enactment of the new EIA regulations, GR 51/1993. These guidelines should be revised with adequate inter-agency participation, and the EIMA should review all drafts prior to approval to ensure policy consistency. Guidelines should be introduced by the EIMA for use as a guidance for standard operating procedures of EIA Commissions in order to improve the consistency of EIA implementation. It is also suggested that the EIMA provides guidance on the acceptable standards of EIA reports.

A requirement to evaluate various alternatives should be emphasised and formally incorporated in the EIA studies including, in particular, the implication of the "no actions" alternative. The detailed provisions defining sanctions and penalties against non-compliance with EIA conditions, should be included in the EIA regulations. Guidelines for EIA appeals, compliance monitoring and enforcement should also be introduced by the EIMA. A formal mechanism for A.G.A. to assist economically weak groups in EIA activities needs to be incorporated in the relevant regulations. There is a need for clarification in the Spatial Use Management Act of 1992 about who is responsible for coordinating spatial use management, defining special areas, and what criteria are to be used in their designation. Institutional mechanisms should be developed to address the integration between spatial use management and EIA. Guidelines for SEA should be introduced by the EIMA.

Administrative Framework

Currently, the EIMA has no direct power to supervise EIA implementation by provincial governments. The authority of the EIMA should be strengthened, e.g. by giving a veto

power to the EIMA to override the inadequate EIA decisions by the A.G.A.. Or, at least, a channel should be made available for the EIMA to appeal to the authority superior to the A.G.A. for a direction on inadequate EIA decisions. The promotion of coordination and consistency in EIA implementation is one of the major tasks of the EIMA, which has not been done in an effective way in the past. There are four areas needing attention from the EIMA, including: coordination and consistency between A.G.A.; consistency in EIA interpretation and direction given by the EIMA's staff; coordination and consistency between EIMA's policies and activities and those of the Ministry of State for Environment; and clear distinction between the respective roles of regional and central government. A clear internal mechanism should be developed within the EIMA in order to accomplish these tasks and improve the effectiveness. The EIMA should encourage cross appointment of Commission members between sectoral departments, and between sectoral departments and provincial governments. This would strengthen coordination and cooperation between agencies. The annual meetings of Regional EIA Commissions organised by the EIMA in association with the Ministry of Home Affairs should be expanded to accommodate the involvement of the Central EIA Commissions. This can improve the vertical communication between Central and Regional EIA Commissions. More channels should be created for exchanging the EIA experience and knowledge between Central and Regional EIA Commissions.

A management unit or specific staff should be integrated into the structural framework of each A.G.A., to coordinate EIA activities within the A.G.A., and with the EIMA, as well as with other relevant authorities. EIA administration is one of the important components to the quality control of the EIA process. It is possible to strengthen this development through various donor projects which could be designed to assist the development of planning and management capabilities.

EIA Procedure

A number of recommendations can be made in order to improve the effectiveness of the EIA procedure. One proposal is to produce a Prospectus which would be a concept document that could serve as the initial entry to the government regulatory process for proponents. This document should be used as an information collection and screening document. Guidance on the preparation of Prospectus could be provided by the EIMA. When the requirements of EIA for the proposed project is confirmed, the proponents should hold a public presentation by which opportunities for communication between the proponent and local communities are provided. The public would than be involved in the procedure at the earliest opportunity and may offer timely and valuable inputs. After the public presentation, the responsible EIA Commission should conduct a project site visit to gain an general picture before the scoping meeting is held.

A formal scoping meeting should be organised by the responsible EIA Commission in association with the proponent and relevant agencies to determine the TOR. Based on the TOR, the EIA reports, including Environmental Impact Analysis, Environmental Management and Environmental Monitoring Plans, should be prepared by the proponent. Once the A.G.A. receives the EIA reports, a receipt should be issued to the proponent. An announcement should be made by the A.G.A. through the mass media and notice board to inform the public. The EIA reports should be put on public display for inspection for certain period of time. This should be followed by a public hearing organised by the EIA Commission. Formal channels for the public to access EIA reports should be specified. The EIA reports should then be reviewed by the responsible EIA Commission. The public or relevant agencies may submit their representations orally or in writing to the EIA Commission. Based on the comments and representations from the EIA Commission and the public/NGOs, the proponent should revise the EIA reports and submit them to the EIA Commission for confirmation. At the same time, the proponent should inform the public or relevant agencies about his responses to the representations raised.

After the EIA approval is given, copies of the EIA reports and given decisions should be sent to the EIMA, relevant agencies and appropriate local governments, and put on public records. The operating permit should be issued only after the proposed environmental management and monitoring plans have been implemented. The proponent may appeal to an authority superior to the A.G.A. against the rejection. After hearing the opinions of the EIMA, the authority superior to the A.G.A. should give the final decisions. This channel should also be made available to the public and interested groups. The proponents and the public/NGOs should also be given the rights to appeal to the judicial agencies, regarding the legal process of EIA. The time limit for public participation at each stage of the EIA procedure should be defined in the EIA regulations.

Role of Actors Involved

It is recommended that the membership of the Central EIA Commissions should explicitly include the representatives of the Ministry of State for Environment and the National Development Planning Board, as permanent members, and the representatives of the appropriate local government and local communities as temporary members. The EIMA should assist the Regional EIA Commissions to improve their capabilities and develop standard operating procedures establishing clearly the relationship between Central and Regional EIA Commissions. The possible conflict of interests arising from the membership of the environmental study centres on the Regional EIA Commission could be avoided, if the environmental study centres were not to participate in the preparation of EIA studies in the region where they are a member of the EIA Commission.

EIA Compliance Monitoring and Enforcement

A formal EIA compliance monitoring and enforcement programme should be set out and coordinated by the EIMA. Adequate budget should be allocated to the relevant agencies so that the monitoring of implementation status and the effectiveness of the EIA process could be carried out effectively. A formal mechanism for community control over the implementation of EIA approvals is recommended. In this way, the level of participation

of the community concerned can be increased in the process of EIA monitoring and follow-up. The EIA Status Reports with a consistent format should be updated by all EIA Commissions and submitted to the EIMA on a regular basis so that the implementation process can be monitored and the EIMA's plans and programmes can be adjusted accordingly. The operating permit should be withheld until all EIA requirements (including approved environmental management and monitoring plans) have been fulfilled.

EIA Implementation in Practice

If the implementation of the EIA system is to be enhanced, the attitude and understanding of senior bureaucrats towards EIA and sustainable development need to be improved. It is suggested that a strategy should be developed by the EIMA for dealing with senior officials in A.G.A. to ensure that the EIA procedure will be implemented in a fair and effective way. Environmental awareness of the public, including EIA, must be strengthened and promoted. In consideration of difficulties presented by public consultation in Indonesia, techniques, such as questionnaire surveys of affected people and discussions with independent NGOs, might be considered as appropriate approaches.

It is suggested that the EIMA could establish sectoral and provincial priorities, and then assign adequate assistance and resources, both financially and technically, to address the implementation requirement of the priority sectors and provinces. The A.G.A. should make sure that the budget for environmental management and monitoring plans are not only stated clearly in the EIA reports, but also actually been made available by the proponents to implement these plans. The EIA implementation procedures within sectoral departments and provincial governments should be reviewed for their effectiveness at regular intervals. Periodic audit of the EIA system should be undertaken by the EIMA in order to improve EIA effectiveness in the light of experience.

Availability of Resources for EIA Implementation

The man-power and financial resources for EIA implementation in the various A.G.A. should be strengthened. The EIMA should develop guidelines and standards for EIA training. By providing these guidelines and standards, the consistency of EIA training courses can be greatly improved. The EIMA should consult environmental study centres when preparing these guidelines and standards. EIA training courses should be held on a regular basis. To encourage and promote good EIA practice, it is recommended that the EIMA may reward the annual awards to the proponents for excellence in implementing EIA cases and to the consultants for high quality EIA studies. This activity would encourage consultants in the market to deliver good quality EIA reports and also promote the capability of consultants indirectly. It is suggested that the EIMA should set up a database which contains information submitted by consultants voluntarily. This database will be useful information to the proponents when tendering EIA contracts.

It is recommended that a central environmental database should be developed by the Ministry of State for Environment for use to support the implementation of EIA and/or spatial use management. The inter-agency coordination should be improved to enable the production of compatible mapped information and data. Equally important, a standardised concept and methodologies for applying GIS should be developed to fit the Indonesian context. There should be a statutory requirement for the EIA Commissions to submit regular EIA status reports to the EIMA. This would expedite the development of the EIA Tracking System. Channels for the public access to EIA documents and the EIA Tracking System (when it comes into operation), should be provided. International assistance has been the driving force for the development and improvement of EIA implementation in Indonesia and this influence will be continued in the foreseeable future.

CHAPTER 7.

THE DEVELOPMENT OF AN EIA EVALUATION MODEL AND A COMPREHENSIVE FRAMEWORK FOR AN EIA SYSTEM

7.1 INTRODUCTION

In order to carry out a comparative review, a full analysis of the effectiveness of Quality Control Mechanisms in the case study countries has been carried out. Based on the results of this analysis, an attempt has been made to develop an integrated EIA Evaluation Model which is used to evaluate the comprehensiveness, effectiveness and performance of the existing EIA systems. It is suggested that competent national authorities can apply this model to identify the strengths and weaknesses of their EIA systems. Using this approach, they could set out priorities and devote resources to overcome shortcomings so that the performance of EIA can be improved.

A conceptual framework for a comprehensive EIA system was then developed, in which the key steps of EIA and the associated activities are identified. It must be recognised that this comprehensive or "ideal" EIA system will need to be interpreted and used by the different countries taking into consideration the special circumstances of historical, socio-economic, political and cultural background. This framework also includes a consideration of the role and interrelationships of various participants and options for action. The role of Quality Control Mechanisms in helping to produce effective EIA performance are included and integrated. Countries with or without EIA systems in place can use this conceptual framework as a reference model to strengthen or develop their EIA systems.

7.2 THE ANALYSIS OF THE EFFECTIVENESS OF QUALITY CONTROL MECHANISMS IN THE CASE STUDY COUNTRIES

The Quality Control Mechanisms list proposed in **Chapter 2** is used to analyse and explain the completeness and effectiveness of the EIA systems in each case study country. The summarised results of this analysis are shown in **Table 7.1**.

Legislative Control

In the UK, Legislative Control (2.3 - 1)[h] was in existence when EA was implemented in 1988. The general guidelines for the EA procedure and guidelines for EA review, appeals and environmental appraisal have been introduced. Nevertheless, this control is not fully exploited and is probably not strong enough to promote the highest standards of performance within the EA system. The reasons are primarily that EA is implemented through secondary regulations and regarded as part of the existing planning system. In addition, EA technical guidelines for various types of development, scoping, and ES preparation, are currently not available to provide guidance to the various participants. This control can thus be considered as only partially effective.

In Taiwan, Legislative Control was not brought fully into play during the period 1985 to December 1994, as EIA has been implemented through non-statutory administrative arrangements. Although there were relevant Regulations, Key Points and Plans (guidance) which incorporated one or two provisions relating to EIA, the implementation of EIA was not effective due to lack of a legal basis, clear screening guidelines. After the enactment of the EIA Law in 1994, Legislative Control has been significantly strengthened which should improve the implementation, compliance and enforcement of EIA. It is apparent that when the guidelines are finalised, this control will gradually make a greater contribution in the improvement of EIA effectiveness.

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[h] As in Chapter 2, these notations are listed in Table 2.3 and are referred to by table and item number, e.g. 2.3 - 1. The definitions of the various quality controls are given in page 42 to 44.

Although EIA has been implemented with a legal basis since 1985, the Malaysian Government does not provide sufficient guidance to facilitate EIA implementation. At present, only four EIA Technical Guidelines for the 19 categories of Prescribed Activity are being prepared by the DOE and relevant key agencies although some handbooks and booklets have been issued. Also, no guidance for EIA review is available. Legislative Control is thus only partially effective.

The legal basis for EIA implementation, appeals, compliance monitoring and SEA, has been established in Indonesia through the Government's regulations since the late 1980's. Some EIA general guidelines relating to procedural matters were introduced by the various participating authorities in 1987. Many lessons have been learned through the process of implementing the existing EIA system over the past few years. Progress has been made by the Government in the light of experience, which led to the 1993 Amendments to the 1986 EIA regulation. Nevertheless, no formal guidelines or procedures have been introduced by the Government for carrying out public consultation, compliance monitoring and enforcement, appeals, and SEA. Legislative Control can, therefore, be rated as only partially effective.

Procedural Control

In respect to Procedural Control (2.3 - 2), the UK EA procedure stipulated in the relevant EA Regulations, Circulars and guidelines is quite clear, with sequential steps and their associated activities. But, it was found that some LPAs were still not aware of, or familiar with, the recommended EA procedure stipulated in the DOE's guide. The addition of EA to the existing process of planning authorisation appears to have diminished its impact and may represent a lost opportunity to bring EA effectiveness fully into play. In addition, the formal requirements of screening and scoping are absent from the current EA procedure.

The current Taiwanese EIA procedure includes the various key steps and associated activities to be followed by the participants. Generally speaking, Procedural Control is quite effective, because in most EIA cases the participants have followed the defined sequential steps throughout the process. However, in a detailed examination of Procedural Control, it can be seen that there is no formal screening process in place and no channels are incorporated in the process for either resolving appeals and dispute settlement regarding the procedural legality of EIA, or EIA decisions. These are the major shortcomings that need to be overcome.

The Malaysian EIA procedure can be divided into two stages, Preliminary Assessment and Detailed Assessment. The Preliminary Assessment process is much simpler than that of Detailed Assessment. No scoping exercise, site visits, formal independent review and proper public involvement are incorporated into the process of Preliminary Assessment. By 1993, a total of 748 EIA reports were received by the DOE, among which more than 90% of the reports were Preliminary Assessment Reports. In other words, more than 90% of the EIA cases only proceeded to the stage of Preliminary assessment. The effectiveness of Procedural Control has been low.

In Indonesia, it is apparent that the screening process is not appropriate since the Government has adopted a "screen out" approach which creates enormous work loads on the process. During the period of 1987 to 1992, EIA for existing projects was required to be conducted following a similar procedure to that for proposed projects. It was found not feasible by many, including the Government itself. This requirement was abolished in 1993. Considering the EIA process, the formal mechanisms for scoping exercise, site visits, public participation in EIA review and decision-making are not clearly defined or are absent from the current procedure. Procedural Control is not effective.

Evaluative Control

Using Evaluative Control (2.3 - 3) to gauge the current UK EA system, it is found that decisions on EA screening by LPAs are inconsistent across the country, due to lack of a formal screening exercise and varied interpretation of Schedule 2 of TCPR 1988 by LPAs, although applicants can appeal to the DOE to determine whether EA is necessary or not. There are criticisms of poor quality and incompleteness of ESs which reflect the inadequacies in the conduct of impact assessment studies. The quality and objectiveness of the EA review procedure are difficult to improve or maintain since the work is conducted at planning officers level, where there is no guarantee that officers have the necessary expertise and experience relating to EA. Moreover, an independent EA review mechanism has not yet been introduced and the Government does not carry out a formal periodic auditing of the EA system to improve its performance in the light of experience.

With respect to Evaluative Control in Taiwan, the performance of the EIA system can only be rated as partially effective. EIA reports are reviewed by the EIA Review Committees which mainly comprise independent subject experts. In this way, the quality of EIA review can be safeguarded. Also, a set of criteria, Criteria of Submission EIS, was introduced by the EPA to facilitate the EIA review exercise. In a similar manner, the results of EIA compliance monitoring are also reviewed by an independent Task Force. Although there is no formal periodic auditing of the EIA system, the EPA has modified the EIA procedures in the light of experience. This exercise would, of course, be improved by regular and formal auditing. However, in respect of decisions on EIA screening, it is not possible to make an objective judgement due to lack of information. Until now, there have been no clear guidelines for screening criteria which may have hampered EIA effectiveness. As for the conduct of EIA studies by proponents/consultants, it is also difficult to judge. Nevertheless, the accuracy and completeness of the studies are reflected by the quality of EIA reports. There are some criticisms and arguments about the poor quality of EIA reports, e.g. the EIS of the SNCC project.

In Malaysia, the information gathered was not sufficient to judge the adequacy of decisions on EIA screening. The Detailed Assessment Reports are reviewed by an independent Review Panel, whereas most of the Preliminary Assessment Reports are reviewed by the EIA Technical Committee without formal involvement of subject experts and other relevant agencies. Evaluative Control can be rated only partially effective.

Considering Evaluative Control in Indonesia, the decisions on EIA screening by various authorised government authorities (A.G.A.) were inconsistent due to lack of explicit screening criteria; the A.G.A. were unclear about what projects could be exempted from EIA requirements. All the EIA reports are reviewed by independent EIA Commissions consisting of governmental officials and subject experts. The Environmental Impact Management Agency (EIMA) has commissioned a project to audit the already-approved EIA reports undertaken by an independent panel, in the hope of improving the quality of EIA report preparation.

Professional Control

Professional Control (2.3 - 4) mainly concerns the capabilities of participants which affect the effectiveness and performance of EIA implementation. The knowledge, experience, skill, qualification of various participants involved in the EIA procedure, are important elements to consider. Before the establishment of the compulsory UK EA system, Professional Control was observed as the driving force to introduce EA in the UK. For example, the EAs of BP Wytch Farm Oilfield Development were conducted partially as a result of the company's professional ethic/code. In the current system, the Government uses the professional organisation namely the Royal Town Planning Institute to provide EA training programmes in order to develop the EA capabilities of planning officers. The DOE tends to leave the responsibility for training planning staff to the Royal Town Planning Institute and LPAs. However, whether for financial or other reasons, most of the LPAs do not organise formal training programmes, but they sometimes support staff

participation in external EA training courses. Given the small number of ESs received per LPA per year, most of the planning officers lack experience and knowledge of EA.

The Taiwanese EPA has organised regular EIA training courses for the responsible government officials in order to improve their capabilities. Unfortunately, these training opportunities are not available to the private sector or consultants. Also, there are no systematic measures in place to ensure or improve the technical competence of consultants. Nevertheless, the EPA sets up a database of consultants for use by project proponents as references.

Considering Professional Control in Malaysia, the National Institute of Public Administration (INTAN) Malaysia has organised regular EIA training programmes since 1987 to improve indigenous EIA capabilities among various participants, especially governmental officials. A number of NGOs are also actively involved in this work. In order to strengthen the technical competence of consultants, the DOE maintains a list of consultants for use by project proponents when tendering contracts.

The awareness and efforts of some senior officials within the Indonesian Government had influence over the initiation and development of the EIA system in the late 1970's. Professional Control was observed as one of the driving forces to implement EIA in Indonesia. To strengthen the EIA knowledge and skills of various participants, EIA training programmes have been coordinated by the EIMA and undertaken by environmental study centres across the country. With respect to the quality control of private environmental consultants, the Government had indicated its intention to set up a consultant registration system in the 1986 EIA regulation, but this was never carried out and the relevant provisions were annulled from the EIA regulation in 1993.

Public/Relevant Agency Control

For Public/Relevant Agency Control (2.3 - 5), the participation of the public, interested groups and relevant agencies (except perhaps for statutory consultees) is encouraged but is not compulsory in the UK during the preparation of the ES. When a formal planning application and its ES have been submitted to the competent authority, public consultation is mandatory. However, there are some exceptions since for road projects a public consultation is normally undertaken at which the Highways Authority present two to four alternatives and invite comments. This control is absent at the stages of screening, scoping and preparation of ESs. Also, it does not exist in post-EA actions, i.e. EA compliance monitoring and enforcement.

Considering Public/Relevant Agency Control in Taiwan, the public, interested groups and relevant agencies do have opportunities to be involved in different stages of the process. The entry point for public participation is at the end of the first phase of the EIA procedure with the public presentation. In the second phase of EIA, the involvement of the public, interested groups and relevant agencies appears in the scoping meeting held by the preliminary review group of the EPA, the site investigation and public hearing held by the authorised authority after receiving the draft EIS. However, there are no channels for the public, interested groups and relevant agencies to appeal against the decisions on EIA cases. Similarly, at the final stage of decision-making by the EIA Review Committee there is no formal involvement of local government or local communities. Furthermore, there are no formal channels for the public, interested groups and relevant agencies to participate in the process of EIA compliance monitoring since the Task Force only comprises subject experts. In the case of SNCC in Ilan County, the County Government hired a third party to investigate the EIS. Although this action was outside the scope of EIA practice defined in the Plan for Strengthening EIA Implementation of 1985, this was a form of Public/Relevant Agency Control. This dimension is now formally incorporated in the newly enacted EIA Law. Article 30 of the EIA Law states that "local people may engage a third party to act on their behalf in the EIA process". Thus, it is evident that

there is still room for Public/Relevant Agency Control to exert a stronger influence on improving EIA effectiveness.

The formal channels for the public, interested groups and relevant agencies to be involved in the Malaysian EIA process are limited, especially at the stage of Preliminary Assessment in which public participation only appears during the preparation of Preliminary Assessment Reports. Up to 1993, the majority of the EIA reports were Preliminary Assessment Reports. It is evident that Public/Relevant Agency Control is not effective.

Considering the current Indonesian EIA system, the channels for the public, interested groups or relevant agencies to be involved at the various stages of the EIA process are limited. They would be notified by the responsible A.G.A. after EIA reports are submitted. Nevertheless, no formal and explicit procedures have been introduced for the public, NGOs and relevant agencies to inspect and gain access to the EIA reports. Public participation does not appear at an early stage of EIA, i.e. scoping, and/or at a late stage of EIA, i.e. EIA review and decision-making. Public/Relevant Agency Control is apparently not effective and may have already been hampered by lack of environmental awareness and a low educational level among the public, and by the strong influence of the Government.

Administrative Control

In the UK, for projects under the planning control system, the Secretary of State for the Environment is the supreme body dealing with EA applications and appeals. The DOE is the core government agency responsible for development and management of the EA system, although other Department/Ministries/Commissions have control over various types of development outside the planning system. There is no supreme body to resolve

EA appeals for projects outside planning control. It is apparent that Administrative Control (2.3 - 6) could be strengthened.

The mechanisms for management and administration of the Taiwanese EIA system and EIA cases have been in existence since 1985 but have been continuously evolving. The power and obligation for implementing EIA is decentralised and shared by environmental protection authorities at central and local levels. The EPA is the core agency responsible for development and management of the EIA system. However, in the current environmental administrative framework, there is no involvement of a superordinate unit to act as an arbitrator to resolve disputes among participating agencies or judge appeals relating to EIA decisions. Administrative Control is thus only partially observed in the current EIA practice in Taiwan.

The Malaysian DOE is responsible for the development and management of the EIA system in Malaysia. Currently, there is no formal channel for project proponents or the public/NGOs to appeal against the EIA decisions to a superordinate authority because the Appeal Board defined in the Environmental Quality Act of 1974 has not yet been established. Administrative Control can only be rated as partially effective.

The EIMA (a core environmental agency) was set up by the Indonesian Government, specially responsible for the development and management of the EIA system. The role of coordination of the EIMA is facilitated by its representatives as one of the permanent members of each EIA Commission. However, the power of the EIMA in supervising EIA implementation by the various A.G.A. is limited. Channels for resolving EIA appeals made to the authority superior to the responsible A.G.A. is available to the proponents, but not to the public or interested groups. Administrative Control can, thus, be rated as only partially effective.

Judicial Control

Judicial Control (2.3 - 7) in the current UK EA system is only partially present because no judicial channel is provided to appeal against the Minister's decisions on EA cases. The High Court would only be able to consider EA appeals where there were grounds for a legal/procedural challenge to the decisions. Judicial Control is absent from the current EIA systems in Taiwan, Malaysia and Indonesia because there is no involvement of judicial agencies in resolving appeals regarding the legal process of EIA.

Follow-up Control

In the UK, Follow-up Control (2.3 - 8) is not effective due to lack of formal requirements for post-EA monitoring in the EA regulations. Currently, compliance and enforcement are done through planning conditions. It is apparent that this control can be further strengthened.

In Taiwan, a programme for the compliance monitoring and enforcement of EIA decisions has been in operation since 1991, but the programme does not apply to the whole range of EIA cases. The results of EIA monitoring are reviewed by a Task Force, a group of subject experts, who also conduct visits to the project sites. Penalties and sanctions would be imposed on the project proponents for non-compliance with the EIA decisions. It is apparent that Follow-up Control can make a useful contribution to improve EIA effectiveness.

Due to ineffective implementation of EIA compliance monitoring and enforcement at state level in Malaysia, Follow-up Control is not effective. Although the provisions relating to penalties/sanctions are stipulated in the EIA regulations, these have not yet been used against any proponents for non-compliance with EIA decisions to date.

Although the legal basis for EIA compliance monitoring was established in 1993, no formal programme has been implemented by the EIMA or A.G.A. in Indonesia. Moreover, no penalties/sanctions against non-compliance with EIA conditions are stipulated in the EIA regulations, which make EIA enforcement even more difficult. It is apparent, therefore, that Follow-up Control is not effective.

Instrumental Control

Instrumental Control (2.3 - 9) has been observed, in terms of the EC Directive from the European Union for the introduction and implementation of EA in the UK. The European Union is likely to be a continuing influence on British EA practice.

In the present Taiwanese EIA system, there is no Instrumental Control in effect. Whether or not it will exert its influence on the EIA practice in Taiwan, remains to be observed in the future.

It was observed that the Malaysian Government has shown a strong resistance to international pressures and influence, e.g. the 1989 "Langkawi Declaration on the Environment" and the 1992 Rio Earth Summit. This phenomenon may result from Malaysia being more economically developed and less dependent on foreign aid. The most recent case was the Pergau Dam project funded by the British Overseas Development Administration in 1994/95, which resulted in conflicts between Malaysia and the UK. Instrumental Control is apparently not effective.

International forces have made a significant contribution to the initiation and development of the EIA system in Indonesia. The assistance, in terms of advisorship, technical and financial supports, has been provided by the international donor agencies, e.g. Asian Development Bank, and through bilateral cooperation, e.g. CIDA and JICA. Instrumental Control is apparent very effective in Indonesia.

Table 7.1 A summary of analysing Quality Control Mechanisms in the case study countries

Quality Control Mechanisms	UK	Taiwan	Malaysia	Indonesia
Legislative Control	• The EA regulations were introduced in 1988. • Guidelines for the procedure in general and review are introduced, but not for various types of projects and ES preparation.	• From 1985 to 94, EIA implementation was through administrative arrangements. • The EIA Law came into force in late 1994. • EIA general and technical guidelines are available. • Guidelines for SEA are yet to be introduced.	• The legal basis for EIA was set out in 1985. • Guidelines for the procedure in general are available. • Lack of EIA technical guidelines.	• The EIA regulations came into effect in 1986. • The linkage of EIA and spatial use management has been formally established. • Lack of EIA technical guidelines.
Procedural Control	• No formal scoping is included (consultations are suggested, but not statutory requirements). • Channel for appeals is included.	• Formal requirements for scoping, site visits, public presentation and hearing. • EIA review bodies have a veto power over decision-making. • No channels for appeals.	• Formal stages for scoping, public participation in Detailed Assessment, but not in Preliminary Assessment.	• Formal mechanisms for scoping, site visits, public participation in EIA review and decision-making are not clearly defined or absent.
Evaluative Control	• Decisions on screening by various LPAs have not been consistent; applicants can appeal to the DOE • No independent EA review; ESs reviewed by local planning officers.	• Independent EIA review by the EIA Review Committees. • Independent review of post-EIA monitoring results by a Task Force.	• Independent EIA review by the EIA Review Panel for Detailed Assessment, but not for Preliminary Assessment (majority of the EIA cases).	• Inadequate screening exercise. • Independent EIA review by EIA Commissions. • Audit of the already-approved EIA reports.
Professional Control	• A driving force for conducting EA before 1988. • EA training programmes provided by the Royal Town Planning Institute, other academic institutions and professional bodies.	• Regular EIA training organised by the EPA for responsible officials, but not for non-governmental participants. • Set up a database of consultants for use as references.	• Regular EIA training organised by the INTAN and relevant professional NGOs. • The DOE maintains a database of consultants for use as references.	• A primary driving force for initiating EIA. • EIA training programmes delivered by environmental study centres at universities with assistance from Canada.

Table 7.1 A summary of analysing Quality Control Mechanisms in the case study countries (continued)

Quality Control Mechanisms	UK	Taiwan	Malaysia	Indonesia
Public /Relevant Agency Control	• No formal channels for involvement prior to or during ES studies (except recommendations to consult statutory consultees during ES studies). • Appears in EA review.	• Appears in scoping and public presentation before EIA studies. • Appears in EIA review. • No formal channels for involvement in decision-making and appeals.	• More channels available in Detailed Assessment, but limited in Preliminary Assessment (majority of the EIA cases).	• Affected by low levels of environmental awareness and education. • Public participation does not exist in scoping and decision-making.
Administrative Control	• The DOE is responsible for EA projects under the planning control system. • The SOS has powers to resolve appeals regarding EA decisions.	• The EPA is the core agency for development and management of the EIA system. • No involvement of a superordinate body to handle appeals.	• The DOE is the core agency for development and management of the EIA system. • The appeal Board has not yet been set up.	• The EIMA is the core agency for development and management of the EIA system. • The authority superior to A.G.A. deals with EIA appeals.
Judicial Control	• The High Court would only be able to consider EA appeals if there were grounds for legal/procedural challenge to the decisions, but not for appeals against the Minister's decisions on EA.	• Non-existent.	• Non-existent.	• Non-existent.
Follow-up Control	• Requirements for post-EA monitoring through planning conditions, but not defined in the EA regulations.	• A formal programme of EIA compliance monitoring in place and conducted by an independent Task Force.	• Implementation at state level has not been effective, due to lack of man-powers and resources.	• Implementation in practice is not effective. • No penalties against non-compliance.
Instrumental Control	• Primary impetus for EA (the EC Directive).	• Non-existent; may appear in the future.	• The Government shows a strong resistance to international pressures.	• International assistance has made a significant contribution.

7.3 THE DEVELOPMENT OF AN EIA EVALUATION MODEL AND ITS APPLICATION IN COMPARATIVE EVALUATION OF THE EIA SYSTEMS

Based on both the model of the domestic and international factors affecting the EIA system (see **Figure 2.2**) and the basic elements influencing the effectiveness of EIA implementation (see **Table 2.1**), all of the factors considered can be regrouped into seven categories (**Figure 7.1**). These seven categories are briefly described as follows:

i. Environmental policies, regulations and guidelines: This category includes five domestic factors (legal basis, technical guidelines, screening criteria, format and contents of an EIS and strategic environmental assessment) and three international factors (guidelines of international donor agencies, regional agreements and international conventions).

ii. Administrative framework: This category consists of two domestic factors (the core environmental agency and participating authorities) and one international factor (international donor agencies).

iii. EIA procedure: Seven domestic factors (screening, scoping/site visits, EIA preparation, public consultation, EIA review and decision-making, as well as appeal and dispute settlement) and one international factor (the requirements of international donor agencies) are included.

iv. Role of actors involved: This category comprises seven domestic factors (applicants/consultants, competent authorities, environmental agencies, EIA review bodies, public/NGOs/relevant agencies, superordinate body and judicial agencies) and one international factor (international environmental NGOs and donor agencies).

v. EIA compliance monitoring and enforcement: Three domestic factors (compliance monitoring programme, public involvement and penalties/sanctions against non-compliance of EIA decisions) and one international factor (involvement of international donor agencies) are included.

vi. EIA implementation in practice: This category includes four domestic factors (political, socio-economic factors, environmental awareness, attitude/perception of

participants and link to SEA) and two international factors (global environmental issues and international pressure/criticisms).

vii. Availability of resources: Two domestic factors (human resources and physical resources) and two international factors (international financial and technical assistance, and bilateral/regional cooperation) are included.

Based on the these categories, an EIA Evaluation Model (a matrix) can now be developed to assess the integrity, completeness, comprehensiveness, performance and effectiveness of an EIA system. Essentially, the model sets a series of questions which can be used to evaluate the various component activities of a country's EIA system. The EIA Evaluation Model is illustrated in **Table 7.2**. This model was used for a comparative evaluation of the EIA systems in the case study countries. The results of this comparative evaluation are also shown in **Table 7.2**. It is important to bear in mind that not all questions are of equal importance and in some circumstances full adoption in theory may not be followed by full implementation in practice. The results shown in **Table 7.2** should be viewed in conjunction with the discussions in the text and the discussions relating to achievements and shortcomings of the individual EIA systems addressed in **Chapter 3** to **6**.

7.4 DISCUSSIONS OF THE RESULTS OF A COMPARATIVE EVALUATION OF THE EIA SYSTEMS IN THE CASE STUDY COUNTRIES

The level of adoption and implementation of EIA in the case study countries are presented in **Table 7.2**, i.e. ●: fully; ⊙: partially; and ○: non-existent. For some questions, absolute and clear cut answers can be given, whereas answers to some questions are less easy to define. Answers to a small section of questions which are marked with asterisk in **Table 7.2**, are inevitably subjective which are based on my limited research, and should be viewed with caution. For one of the subset of questions, marked with the symbol: #, only one of the four potential answers can be given. The strengths and weaknesses of each fundamental aspects of the EIA systems in the case study countries may be provisionally assessed.

Figure 7.1 The seven categories of factors of the EIA system

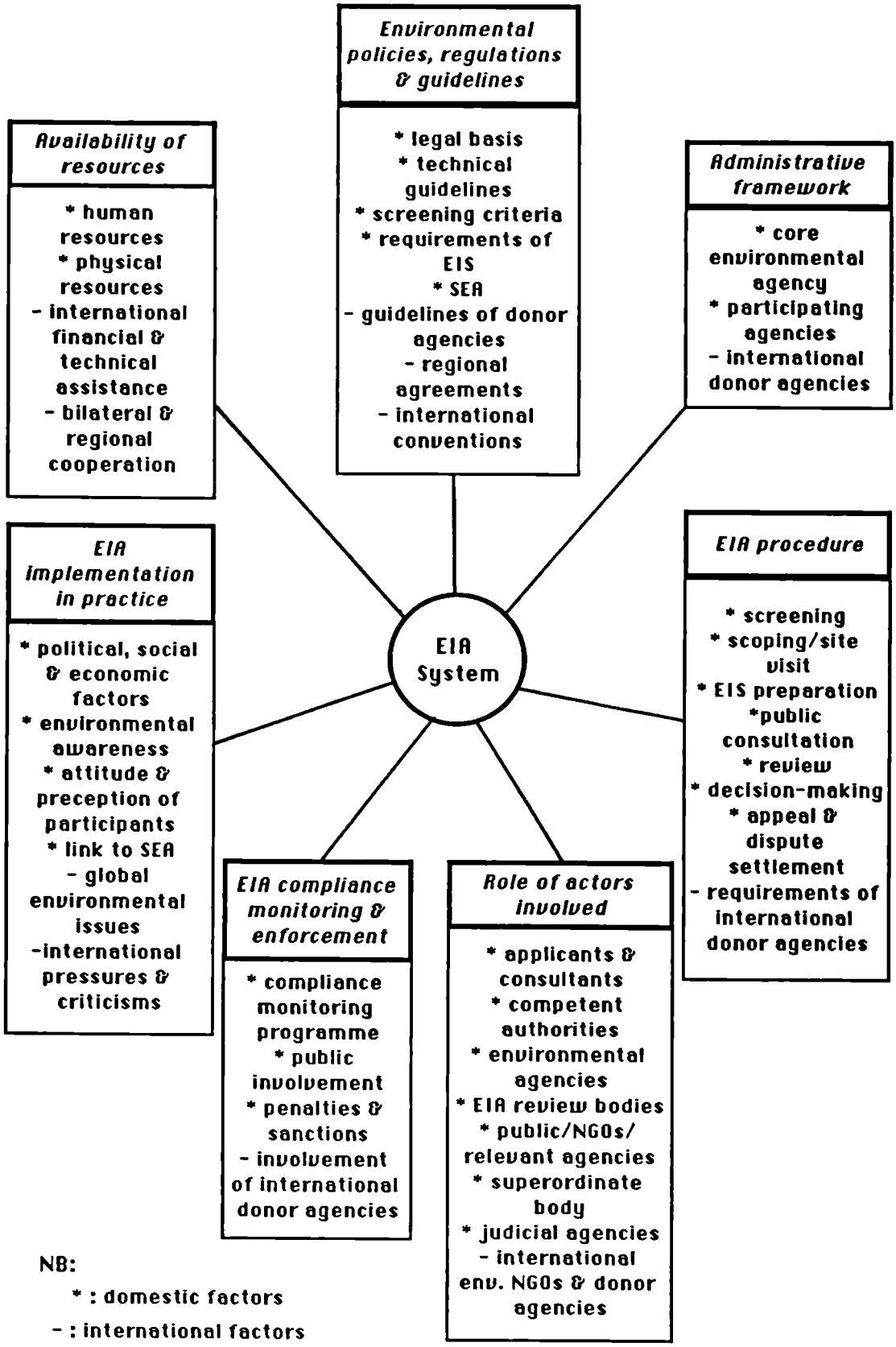


Table 7.2 EIA Evaluation Model (●: fully; ⊙: partially; ○: non-existent) **(level of adoption/implementation of EIA)**

Environmental Policies, Regulations and Guidelines (i)	UK	Taiwan	Malaysia	Indonesia
1. Does EIA implementation have a secure legal basis?				
a. implemented through primary legislation	⊙	●	●	●
b. implemented through administrative arrangements	○	○	○	○
c. implemented retrospectively	○	●	○	○
e. for appeal and dispute settlement	●	○	●	●
f. for compliance monitoring and enforcement	○	●	●	⊙
g. for strategic environmental assessment	⊙	●	○	●
2. Does the core environmental agency produce a complete set of EIA guidelines?				
a. technical guidelines for various types of development	⊙	●	⊙	⊙
b. for the EIA procedure (e.g. screening, scoping)	⊙	⊙	⊙	⊙
c. for EIA report preparation	○	●	●	●
d. for EIA review	●	●	○	○
e. for appeal	●	○	○	○
f. for EIA compliance monitoring and enforcement	○	●	○	○
g. for strategic environmental assessment	⊙	○	○	○
3. Does the scope of EIS formally include the following requirements?				
a. defined formal format and contents	⊙	●	●	●
b. alternatives and no action strategy	⊙	⊙	●	○
c. cultural, social and economic issues	⊙	●	●	●
d. impact mitigation measures	●	●	●	●
e. environmental management and monitoring plans	○	●	○	●
f. a non-technical summary	●	●	○	●
4. Do the EIA guidelines of donor agencies affect the development of the national EIA regulations?	○	○	●	●
5. Has the national EIA practice been influenced by international conventions? *	●	⊙	●	●
6. Is the development of the national EIA regulations influenced by regional agreements?	●	○	○	○

Table 7.2 EIA Evaluation Model (●: fully; ⊙: partially; ○: non-existent) **(level of adoption/implementation of EIA)**

Administrative Framework (ii)	UK	Taiwan	Malaysia	Indonesia
1. Is there a core environmental agency responsible for the development and management of the EIA system?	⊙	●	●	●
2. To what extent is EIA centralised/decentralised #				
a. the core environmental agency				
b. various central agencies				
c. the core environmental agency and local authorities		●	●	
d. various central agencies and local authorities	●			●
3. To what extent are inter-agency coordination mechanisms for EIA implementation in place				
a. formal mechanisms established	●	●	⊙	●
b. EIA management units set up in participating agencies	●	●	●	⊙
c. integration of inter-agency participation by the core environmental agency	○	●	○	⊙
4. Are the EIA review authorities independent from the project proponents (authorised authorities)?	⊙	⊙	●	⊙
5. Has the development of the core environmental agency benefited form international assistance?	○	○	○	●

#: Only one of the four potential answers can be given. Decentralised mechanisms can be effective providing there is an adequate inter-agency coordination.

Table 7.2 EIA Evaluation Model (●: fully; ⊙: partially; ○: non-existent) **(level of adoption/implementation of EIA)**

EIA Procedure (iii)	UK	Taiwan	Malaysia	Indonesia
1. Are the following steps formally included in the EIA procedure?				
a. screening process	⊙	⊙	⊙	⊙
b. scoping meeting and site visit	⊙	●	⊙	⊙
c. a formal mechanism for independent EIA review	○	●	⊙	●
d. the proponent responds to the various representations and makes those responses public	○	●	○	○
e. the proponent revise the EIA report based on the comments to produce the final EIA report	○	●	○	⊙
f. publicity of the EIA decisions and results	●	●	●	●
g. the EIA review bodies have a veto power over the decision-making	○	●	○	○
h. formal mechanisms for appeals and dispute settlement	●	○	⊙	⊙
i. clear time limit for each step of the EIA procedure	●	●	●	⊙
2. Do the public have following formal channels to participate in the EIA procedure?				
a. prior to the ES study (i.e. scoping, public presentation)	○	●	○	○
b. during the EIA study	⊙	⊙	●	⊙
c. after the EIA study (formal mechanisms for public notification and inspection)	●	●	⊙	⊙
d. access to the EIA reports	●	⊙	⊙	○
e. public hearing held	⊙	●	○	○
f. to be involved in EIA review	●	●	⊙	⊙
g. to be involved in decision-making	⊙	○	○	○
3. Is the national EIA procedure affected by the requirements of international donor agencies?	○	○	⊙	⊙

Table 7.2 EIA Evaluation Model (●: fully; ⊙: partially; ○: non-existent) **(level of adoption/implementation of EIA)**

Role of Actors Involved (iv)	UK	Taiwan	Malaysia	Indonesia
1. Have the necessary roles and responsibilities been defined and appropriate actors allocated to perform these tasks been arranged?				
a. independent EIA review bodies organised by the responsible agencies	○	●	⊙	●
b. mandatory requirements for consultation with statutory consultees	●	●	⊙	○
c. involvement of a supreme authority to resolve appeals regarding decisions on EIA cases	⊙	○	○	⊙
d. involvement of judicial agencies to resolve appeals regarding the legal and/or administrative process of EIA	⊙	○	○	○
2. Is there involvement of international donor agencies in domestic EIA cases	○	○	●	●
EIA Compliance Monitoring and Enforcement (v)	**UK**	**Taiwan**	**Malaysia**	**Indonesia**
1. Are there formal EIA compliance monitoring programmes in place?				
a. carried out by the core environmental agency	○	●	●	●
b. carried out by competent authorities	●	○	○	●
c. involvement of independent review bodies in the programmes	○	●	○	○
d. submission of regular monitoring results by the proponents	⊙	●	⊙	⊙
e. a formal mechanism for reviewing the results of compliance monitoring	○	●	○	○
f. involvement of local communities in the programme	○	○	○	○
g. access to the results of the compliance monitoring and enforcement programme by the public	○	○	○	○
2. Can EIA decisions be formally enforced?				
a. defined penalties/sanctions against non-compliance with EIA decisions	●	●	●	○
b. channels for public to appeal against non-compliance with EIA decisions	○	○	○	○
c. involvement of judicial agencies in EIA enforcement	●	●	●	○
d. linked with the permitting/licensing system	⊙	●	●	●
3. Are international donor agencies involved in the national EIA compliance monitoring/enforcement	○	○	⊙	⊙

Table 7.2 EIA Evaluation Model (●: fully; ⊙: partially; ○: non-existent) **(level of adoption/implementation of EIA)**

EIA Implementation in Practice (vi)	UK	Taiwan	Malaysia	Indonesia
1. To what extent has EIA affected the project planning cycle				
a. proceed in association with feasibility study *	⊙	⊙	⊙	⊙
b. use to justify project decisions that have already been made *	⊙	⊙	⊙	⊙
c. decision-making significantly affected by the EIA results *	⊙	⊙	⊙	⊙
d. projects frequently modified as a result of EIA findings *	●	●	●	●
2. To What extent has EIA been affected by political, social and economic factors				
a. lower priority of economic growth than that of environmental protection *	⊙	○	○	○
b. political factors frequently affect decisions on EIA cases *	⊙	⊙	⊙	⊙
c. the awareness and ability of the public to participate in the process *	●	●	⊙	⊙
d. influence of NGOs on EIA cases *	●	●	⊙	⊙
3. Are there opportunities to experiment and "learn by doing" in order to develop more appropriate and effective administration procedures and mechanisms?	⊙	●	●	●
4. Does the core environmental agency conduct a regular audit of EIA reports?	○	●	⊙	⊙
5. Does the core environmental agency conduct a regular audit of the EIA system?	○	○	○	○
6. Has strategic environmental assessment formally been implemented?	⊙	⊙	○	⊙
7. Have the international NGOs exerted influence on domestic EIA decisions? *	⊙	⊙	⊙	⊙
8. Has the national EIA practice been influenced by international pressures and criticisms? *	⊙	⊙	⊙	⊙

Table 7.2 EIA Evaluation Model (●: fully; ⊙: partially; ○: non-existent) **(level of adoption/implementation of EIA)**

Availability of Resources (vii)	UK	Taiwan	Malaysia	Indonesia
1. Is there an extensive commitment of governmental staff to implement EIA?				
a. at central level *	⊙	⊙	⊙	⊙
b. at local level *	⊙	⊙	⊙	⊙
c. regular EIA training courses organised/coordinated by the core environmental agency for responsible officials	⊙	●	●	●
d. a database of subject experts in place, from which experts could be called upon for consultation	○	●	●	○
2. Are there adequate measures in place for upgrading human resources outside the Government?				
a. training courses organised by the core environmental agency are available to consultants, proponents, or NGOs	○	○	●	○
b. training courses organised by non-governmental institutions are available to consultants, proponents and NGOs	●	○	●	●
c. a consultant registration system	○	○	○	○
d. a database of consultants established for reference	○	●	●	○
e. annual excellence awards of good EIA practice for consultants and proponents	○	○	○	○
3. Are there adequate physical resources for EIA implementation?				
a. a central environmental database established	⊙	⊙	○	○
b. an EIA tracking system established	○	○	●	⊙
c. a central database of EIA reports established	⊙	⊙	●	●
d. regular EIA status reports or newsletter published by the core environmental agency	○	●	●	⊙
e. use of GIS in EIA and national/regional planning by governmental agencies	⊙	⊙	⊙	⊙
f. accessibility of the public and NGOs to the aforesaid facilities	⊙	⊙	⊙	⊙
4. Availability of international technical supports (e.g. advisorship, EIA training)	○	○	●	●
5. Availability of international financial supports (e.g. the development of EIA and facilities)	○	○	●	●

* : Answers to these questions are inevitably subjective and should be viewed with caution.

Environmental Policies, Regulations and Guidelines

The four countries have all implemented EIA through legal requirements. Primary legislation has been introduced in Taiwan, Malaysia and Indonesia, whereas the UK adopts EIA through secondary regulations. The requirements of strategic environmental assessment are formally incorporated into the EIA regulations in Taiwan and Indonesia; the UK Government has introduced environmental appraisal for local/regional planning. The Taiwanese EPA has provided more guidance, in the form of guidelines for various types of development, on the preparation of EIA reports, review procedure, and compliance monitoring and enforcement, than the other three countries. The UK DOE has introduced guidelines for procedures, review and appeals. In Malaysia and Indonesia, although guidelines are planned the majority are still under preparation or do not exist. The requirements for EIS preparation are more strictly and clearly defined in Taiwan and Indonesia. International forces, i.e. international donor agencies, have made an important contribution to the initiation of EIA in Malaysia and Indonesia, whereas in the UK the international pressure for the introduction of the EIA regulations arose from regional agreements in the European Union.

Administrative Framework

The Taiwanese EPA, the Malaysian DOE and the Indonesian EIMA all have the full responsibility for development and management of the EIA systems in their countries. Due to the nature of decentralisation in the UK, the UK DOE is only responsible for EIA projects under the planning control system. Projects outside such control fall under the jurisdiction of the other central government departments and commissions which have a high degree of independence and autonomy for EIA. Most of the key participating authorities in the UK, Taiwan and Malaysia have set up working units or assigned specific officials to deal with the EIA matters. Both the Taiwanese EPA and the Indonesian EIMA have organised annual meetings for the various participating agencies in order to exchange practical experience and improve EIA implementation. The

development of the Indonesian EIMA has benefit from international assistance, i.e. support from the JICA for the establishment of the Environmental Management Centre.

EIA Procedure

It is apparent that the provisions relating to various steps of the EIA procedure are more explicitly and strictly defined in Taiwan although channels for EIA appeal and dispute settlement have not yet been included. In the UK EIA procedure, a number of actions/activities are only recommendations, rather than statutory requirements, e.g. scoping and public consultation prior to the EIA study. In Malaysia, the procedure for Detailed Assessment are relatively comprehensive, e.g. with independent review and more paths for public participation. However, more than 90% of the EIA cases only proceeded to the stage of Preliminary Assessment in which many of the formal requirements for the Detailed Assessment process do not exist. Compared to the other three countries, the Indonesian EIA procedure is less comprehensive with limited opportunities for public participation. However, the national EIA procedure has been reinforced on occasions by the requirements of international donor agencies for their funded projects, e.g. the Tampur Hydropower Scheme funded by the Asian Development Bank.

Role of Actors Involved

EIA cases are reviewed by independent review bodies both in Taiwan and Indonesia, whereas in Malaysia the independent review panel would only be called upon to review Detailed Assessment Reports. In the UK, the mechanisms for independent EIA review are absent. As discussed in **Chapter 4**, EIA cases are reviewed at the planning officers level which may or may not have EIA knowledge or experience. This may make an objective assessment of EIA reports more difficult to achieve. There is involvement of a superordinate authority in resolving EIA appeals in the UK and Indonesia. However, this does not apply to projects outside the planning control system in the UK; and this channel is not available to the public, interested parties and relevant agencies in Indonesia.

EIA Compliance Monitoring and Enforcement

The Taiwanese EPA appears to be quite active in undertaking the programmes of EIA compliance monitoring and enforcement. It would be, of course, even better if the involvement of local communities and interested parties could be formally incorporated into the programmes. Although the requirements for EIA compliance monitoring are formally defined in the Malaysian and Indonesian EIA regulations, the implementation of these requirements was not effective in practice. Due to lack of formal requirements from the EC Directive, post-EIA monitoring is currently absence from the EA regulations in the UK. This is one of the major shortcomings of the UK EIA system.

EIA Implementation in Practice

Answers to most of the questions relating to 'EIA Implementation in Practice' are inevitably subjective and less easy to define. EIA in Taiwan, Malaysian and Indonesia has initially been implemented through administrative arrangements and then subsequently changed to legal requirements. The competent national authorities have modified their EIA procedures in the light of experience through the experiment and "learn by doing" process. In the UK, because EIA has been added on to the existing decision-making processes, the flexibility for modifying the current EIA system within the existing institutional structure and legislative framework is much less. Generally speaking, public involvement in EIA is more active in the UK and Taiwan, because more channels are provided, and environmental awareness and literacy rates are higher. However, it is evident that economic growth has been placed at a much higher priority than that of environmental protection by the national governments in South-East Asia.

Resource Availability

Lack of skilled man-power and financial resources for EIA implementation is a common problem encountered by these four case study countries. The competent national authorities in Taiwan, Malaysia and Indonesia are quite active in involving EIA training and improving indigenous EIA capabilities. There are no formal EIA training programmes

or guidance provided by the UK Government, although a number of EIA training courses have been organised by academic institutions or relevant professional NGOs. Both the Taiwanese EPA and the Malaysian DOE have set up a database of consultants for use by project proponents as references. A central database of EIA reports has been established in Malaysia and Indonesia. In addition, the Malaysian DOE has already set up an EIA tracking system to monitor, record and report the status of EIA cases. It is evident that international resources, in terms of technical and financial support, have made a positive contribution to the development of EIA systems in Malaysia and Indonesia.

The advanced status of the Taiwanese EIA system partly reflects the fact that new legislation was produced in 1994. It is to be expected that in both Malaysia and Indonesia current discussion and planning will lead to improvement over the next five years. Major progress in the UK will probably be dependent on future EC (regional) Directives. As these Directives have to be agreed by all Member States of the European Union, the time frame for change may be lengthy. However, the recent UK publication of further guidelines suggests that some advance will occur in the implementation process.

7.5 THE DEVELOPMENT OF A CONCEPTUAL FRAMEWORK FOR A COMPREHENSIVE EIA SYSTEM

Based on the findings and results of this comparative evaluation, a conceptual framework for a comprehensive EIA system has been developed. The function of this comprehensive EIA system is to provide general guidance to competent national authorities for the development and improvement of their national EIA systems. The conceptual framework for a comprehensive EIA system is based on the principle that some form of quality control is required at each stage of the EIA process. A matrix has been constructed using the fundamental components of an effective EIA system from the working hypothesis given in **Chapter 1** as the vertical axis and the various types of quality control outlined in **Chapter 2** as the horizontal axis. The potential Quality Control Mechanisms for each of

the fundamental components have been entered into the matrix with a number denoting the related discussion paragraph in the text (**Table 7.3**).

The different combinations of the various Quality Control Mechanisms can lead to high performance of each component of the EIA system. In this proposed "ideal" EIA system, the major aspects of EIA and their interrelationships, the associated steps for implementation, and the options for action and activities, are developed. Details are discussed in the following section.

7.5.1 ENVIRONMENTAL POLICIES, REGULATIONS AND GUIDELINES

It is important that a legal basis for EIA implementation should be provided. A special EIA regulation should be introduced by national governments, by which EIA implementation, compliance monitoring and enforcement, and appeals and settlement of disputes are made legally enforceable. If EIA is to be applied to both public and private projects, the differences between public and private proponents should be recognised, which need to be reflected in EIA requirements regarding such matters as the consideration of alternatives and the administrative procedures for EIA cases. EIA technical guidelines, which provide guidance for various types of development subject to EIA, should be introduced by competent national authorities. Guidance, in the forms of administrative procedures, checklists, planning and design manuals, flow charts, reference lists of available data resources, and good examples of EIA studies etc., should be provided. Clear EIA screening criteria should be stipulated so that resources and effort are not wasted on unimportant projects (i.e. project not having significant impacts), and will thus provide a more efficient use of the work force and reduce delays and uncertainties in project decision-making. A better link between EIA decisions and the permitting/licensing conditions that are imposed on the projects, should be established (7.3 - 1)[i] .

[i] These notations are listed in Table 7.3 and are referred to by table and item number, e.g. 7.3 - 1.

Table 7.3 A conceptual framework for a comprehensive EIA system

Working Hypothesis	Quality Control Mechanisms								
	Legislative Control	Procedural Control	Evaluative Control	Professional Control	Public / Relevant Agency Control	Administrative Control	Judicial Control	Follow-up Control	Instrumental Control
Environmental Policies, Regulations & Guidelines	1								2
Administrative Framework	3					4			5
EIA Procedure	6	7	8		9	10			11
Roles of Actors Involved	12			13		14	15		16
EIA Compliance Monitoring and Enforcement	17	18	19		20		21	22	23
Status of EIA Reports	24		25						26
EIA Implementation	27		28	29	30				31
Resource Availability			32			33		34	35
Implementation of SEA	36	37	38		39	40		41	42
International Interactions									43

Note: The notations are referred to throughout the text by table and item number.

International forces (e.g. international donor agencies and bilateral cooperation) could exert their influence to help competent national authorities in initiating or developing EIA regulations and technical guidance, which are especially useful for countries with little or no EIA experience. Over the past two decades, many multilateral/bilateral donor agencies have produced EIA guidelines. It would be beneficial if these documents were also available in local languages. The countries without or with limited EIA experience would be benefit from the guidance of donor agencies while preparing the indigenous EIA regulations and guidelines (7.3 - 2).

7.5.2 ADMINISTRATIVE FRAMEWORK

A mechanism for the development and management of the EIA system should be clearly stipulated in relevant regulations and guidelines; the work should be carried out by the core environmental agency. The core environmental agency at central level should be responsible for providing clarification of EIA policies and practices, organising and supervising the administration of the EIA system, recording and publishing information on EIA, issuing procedural and technical guidance, interagency coordination, and periodic audit of the EIA system, to improve EIA effectiveness (7.3 - 3). The task of EIA implementation, no matter whether through centralised, functional decentralised or hierarchical decentralised approach, should be explicitly allocated to the appropriate agencies. The precise form is less important than the clarity of the agency's mandate and the extent of support provided at different levels. The situation where the project proponents (competent authorities) are also the EIA review and decision-making bodies, should be avoided, by assigning the work of EIA review and/or decision-making to the core environmental agency. A formal mechanism for inter-agency EIA cooperation and coordination should be established so that planning and design decisions better reflect the diverse interests and objectives of the interested parties. However, due to the entrenched political-economic interests that may be involved, effective inter-agency coordination agreements may require intervention at a super-agency level (7.3 - 4). International forces

can provide help to the national governments to develop and strengthen their national environmental administrative framework (7.3 - 5) (e.g. EMDAL in Indonesia, JICA-Malaysian cooperation).

7.5.3 EIA PROCEDURE

A clear, transparent, comprehensive EIA procedure should be stipulated in the EIA regulations and guidelines. A generic EIA process should comprise the following key steps: project identification and definition; screening; scoping and site visits; baseline environmental data collection and analysis; EIA study; public consultation before, during and after the EIA study; EIS preparation; EIA review; decision-making; publicity of EIA results and decisions; and appeals and dispute settlement. The head of the core environmental agency should be given a power to call-in EIA cases, originally under the jurisdiction of the other competent authorities, if he considers that the proposed projects are likely to have significant environmental impacts. The associated activities, actions and time limit of each step of the process should be explicitly stipulated. A well-defined flow chart for the EIA procedure would be beneficial to all participants. Procedural guidelines for every key step of the procedure should be introduced so that the performance at all stages of EIA by various participants can be improved (7.3 - 6, 7). Decisions on screening of EIA cases should be recorded and filed. Reasons for the decisions should be given; all the records should be made available for public scrutiny. In this way, the responsible agencies have to be accountable for the decisions that they make. The evaluation of EIA reports should be carried out by independent and multi-disciplinary EIA review bodies organised by the competent authorities or environmental agencies; the results of EIA review should be made public. Information presented should be available in the appropriate local languages (7.3 - 8). The competent authority may require the proponent to submit a public information or involvement programme at the outset of the planning process, which can facilitate the early and ongoing incorporation of public concerns and preference. The public, interested groups and relevant agencies should exert their

influence at various steps of the EIA procedure. Before the start of the EIA study, public consultation is an important way of developing consensus and understanding between local communities and the proponents. To achieve this, a number of methods, e.g. public presentation or visiting the local leaders, could be used, depending upon the local situations. Special attention should be given if the proposed developments involve or affect the interests of indigenous communities. Various forms of communication should be considered. This pre-EIA consultation should be carried out by the proponent in association with the competent authority and/or environmental protection authority. The information collected is useful reference and can be used in the scoping meetings. During the period of the EIA study, methods, such as a questionnaire survey, site visits and interviews with local people, should be applied to gather local knowledge and concerns. After the EIA study, channels should be made available for the local opinions to enter the EIA review and decision-making process, e.g. by inviting representatives of local communities, interested parties and relevant agencies. A full and timely notice in the appropriate local languages of all pending EIA actions or decisions should be incorporated into the process, e.g. through newspapers or other media, public notice board or postal notice. In addition, a period of time and channels for appeals should be available to the public, interested parties if they disagree with the EIA decisions given (7.3 - 9).

There should be a clear internal procedure/mechanism for the administration and processing of EIA cases to be used by responsible officials within the competent authority and/or environmental protection authority (7.3 - 10). For countries without formal EIA procedures, multilateral/bilateral donor agencies can assist and encourage the development of the national EIA procedures. For countries with simple and not well-defined EIA procedures, international forces can provide impetus to make indigenous EIA procedures more comprehensive and transparent (7.3 - 11). A proposed comprehensive EIA procedure is illustrated in **Figure 7.2a** and **7.2b**. **Figure 7.2a** shows the general EIA process and **Figure 7.2b** shows the process for EIA appeals.

Figure 7.2a The flow chart for the proposed comprehensive EIA procedure

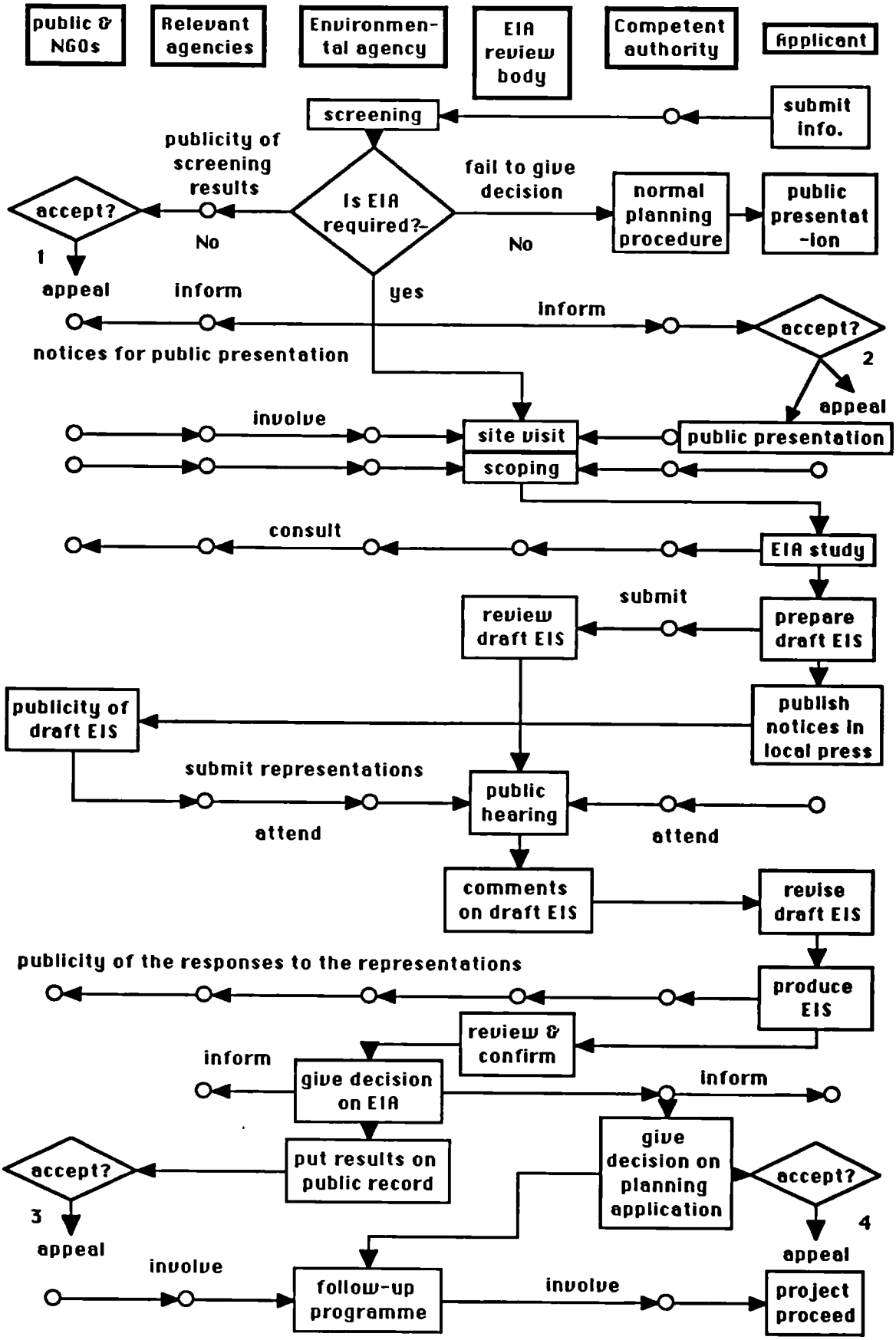
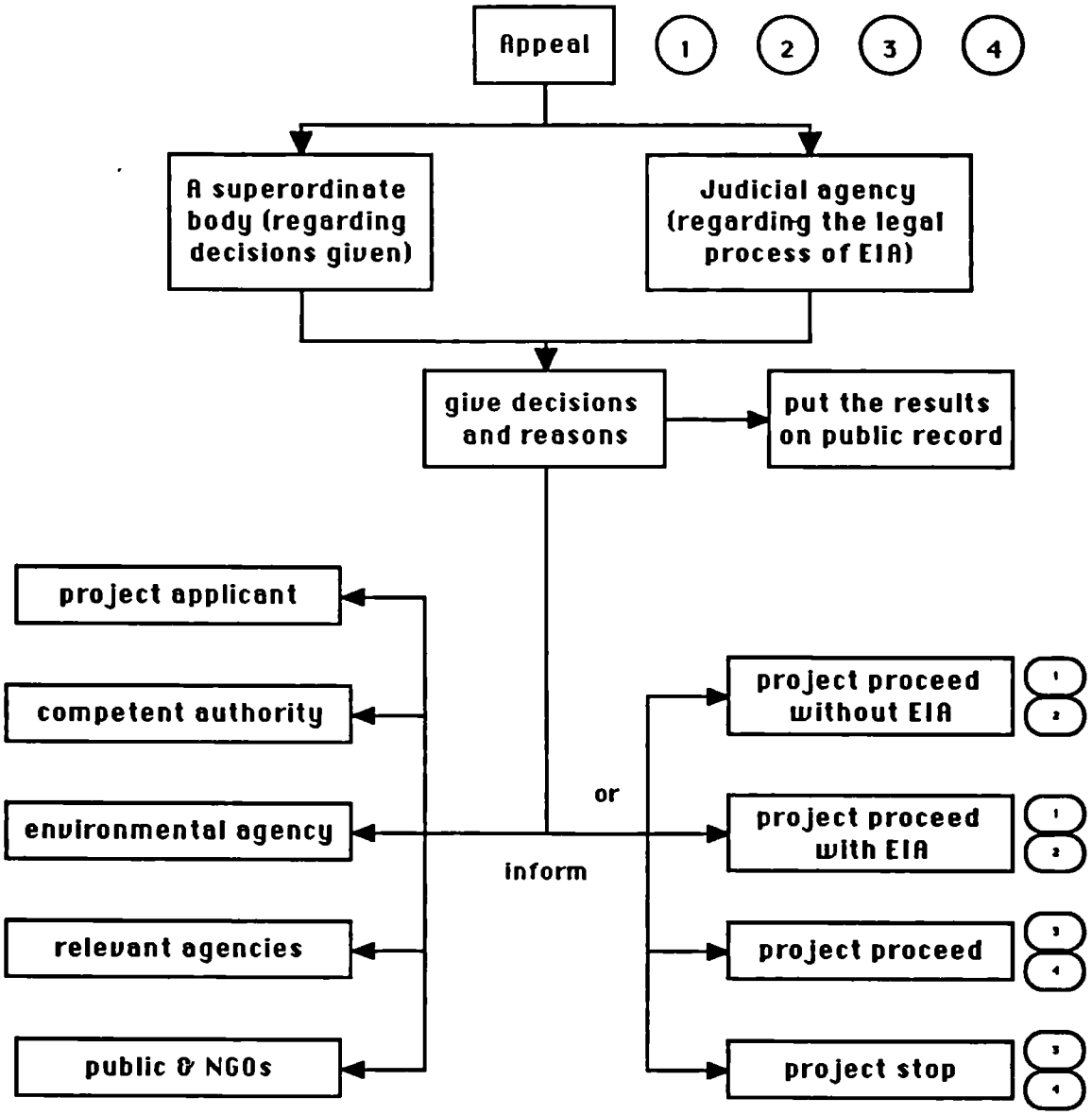
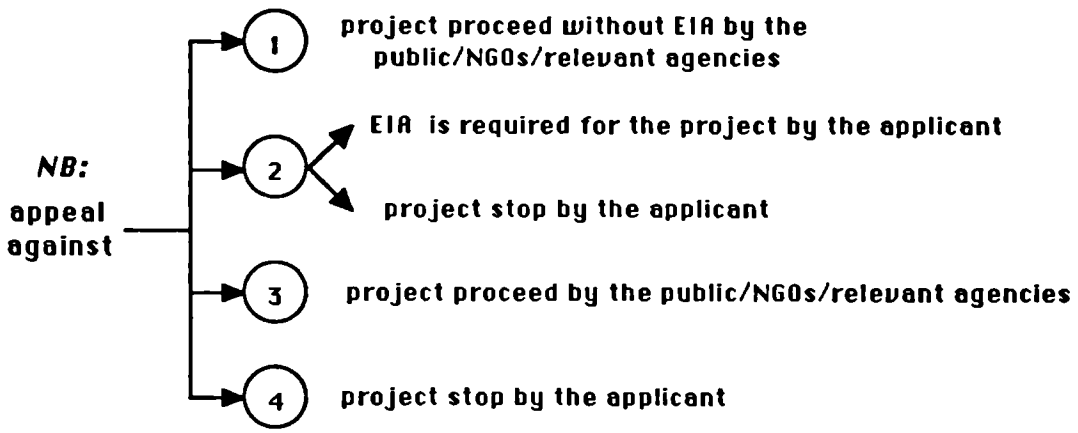


Figure 7.2b The flow chart for the proposed comprehensive EIA procedure (continued)





7.5.4 ROLE OF ACTORS INVOLVED

The tasks, rights and obligations of various participants involved in the EIA system should be explicitly defined in EIA regulations and guidelines, including provisions relating to the memberships of independent EIA review bodies (7.3 - 12).

Quality control over various participants in relation to their EIA experience, knowledge and capabilities, especially consultants, responsible officials and EIA reviewers, can improve EIA effectiveness. An effective EIA system requires the presence of technically competent personnel at all levels, including participants within and outside the government. Needs assessment analyses and recruitment schemes for present and future EIA staffing requirements are needed for governmental and non-governmental organisations to enable the development of capacity building programmes. The development of formal academic programmes, informal short courses, seminars/workshops, and various of on-the-job training for EIA participants, have been suggested as a major element of EIA strengthening strategies. The core environmental agency should take a leading role and cooperate with various professional organisations in promoting or organising regular EIA training programmes for various participants. The target groups which need EIA training should be identified. Each group may have particular needs which can help to define the nature, depth and duration of the training approach to be applied. Generally speaking, the target group may include: responsible governmental officials in the environmental and competent authorities; policy makers; project proponent agency staff; private sector project proponents; private environmental consultants; EIA reviewers; NGOs and other community interested groups; enforcement system staff; project contractors' staff; and trainers of the trainers. This activity is essential to the development of indigenous EIA capabilities. Consultant registration may be a useful way to maintain technical confidence in consultants, especially in countries where EIA expertise is limited. In addition, this information provides a useful reference for project proponents tendering for contracts to carry out EIA studies. The establishment of an EIA professional organisation should be encouraged which is devoted to EIA

practitioners' interests and concerns, including professional recognition, development of codes of ethics, standards of practice and environmental training programmes. Annual awards for EIA excellence are a possible way to reward the proponents and consultants who have carried out EIA implementation effectively (7.3 - 13).

The involvement of a superordinate unit is suggested in order to resolve EIA appeals and dispute settlement regarding EIA decisions given by competent authorities (7.3 - 14). The involvement of judicial agencies in resolving EIA appeals regarding the legal process of EIA, should be incorporated into the process to safeguard the fairness and procedural legality of EIA (7.3 - 15). International support can strengthen indigenous EIA capabilities, e.g. through technical assistance and advisorship to EIA training (7.3 - 16).

7.5.5 EIA COMPLIANCE MONITORING AND ENFORCEMENT

One of the traditional weaknesses of EIA practice has been the failure to evaluate the accuracy of impact prediction/evaluation and the effectiveness of impact management/mitigation measures. A requirement to monitor impacts and the effectiveness of impact management measures, preferably with commitments formalised in a compliance agreement, is important if EIA is to move beyond a pre-approval planning exercise and towards an ongoing environmental management function (*Lawrence 1994*). The legal basis for carrying out EIA compliance monitoring and enforcement should be provided in regulations, within which the procedure, associated activities, and penalties/sanctions against non-compliance of the EIA decisions should be clearly defined. In the process of EIA enforcement, the responsible agencies should be given a power to halt the proceeding of the projects until major problems are resolved to the satisfaction of the agencies. Guidelines for conducting EIA compliance monitoring and enforcement should be introduced which provide guidance to the responsible participants (7.3 - 17, 18).

There should be requirements for the project proponents to submit the results of post-EIA monitoring to the responsible agencies on a regular basis. The results of EIA compliance monitoring should be reviewed by either the responsible authority or independent review bodies, involving the project proponent, responsible officials, subject experts and community/NGO representation. The review results of EIA compliance monitoring should feedback to the project proponents so that they can modify their environmental management plans. Adequate resources should be allocated to the responsible agencies to carry out this work. Detailed EIA compliance monitoring may not be required for all EIA projects. The responsible agencies may set out a priority list for projects which require compliance monitoring, e.g. controversial, problematic or major developments (7.2 - 19). Channels for public involvement in EIA compliance monitoring should be provided and the results should be available for public scrutiny (7.3 - 20). The involvement of judicial powers (if appropriate) would be useful to ensure the compliance with the EIA decisions (7.3 - 21).

A formal EIA compliance monitoring and enforcement programme should be established and implemented by the responsible agencies to ensure that agreed EIA conditions are satisfied. Also, post-EIA audit on the EIA cases should be carried out by the competent national authorities to review the effectiveness of environmental management plans stated in EISs. The linkage of EIA and audit within the project planning cycle is essential in order to extend environmental considerations to include the complete life cycle of the project (7.3 - 22). Multilateral/bilateral aid agencies can exert their influence on countries without EIA compliance monitoring and enforcement programmes in place, by assisting and requiring the work to be undertaken and reviewed for their funded projects (7.3 - 23).

7.5.6 STATUS OF EIA REPORTS

The formal contents and format of an EIA report (EIS) should be clearly defined in relevant regulations. Generic contents of an EIS should contain: a non-technical

summary; details of the proponent and hired consultants; a statement of need; a project description; alternatives; baseline environmental conditions of the proposed project site; impact identification, prediction and evaluation; the methodologies used; statements on the level of uncertainty of the study; impact mitigation measures; identification of residual impacts; an environmental management plan (including environmental monitoring programme); identification of resource availability for environmental management (e.g. man-power, budget); a summary of conclusions, data resources, and public participation; and references (7.3 - 24).

The core environmental agency should conduct a regular audit of selected EIA reports, e.g. major developments or problematic projects, in respect to report presentation, differences between impact prediction/evaluation and the real effects in practice, and accuracy of the methodologies used. This will help to improve the accuracy, adequacy and quality of EIA studies and EIS presentation (7.3 - 25). In countries where there is no requirement for preparing EIA reports, multilateral/bilateral aid agencies may operate their influence on their funded projects to require and assist the preparation of EIA reports by the recipient countries (7.3 - 26).

7.5.7 EIA IMPLEMENTATION IN PRACTICE

It would be an advantage if the commitments for impact mitigation and management stated in the EIA reports are formally and legally incorporated into the contracts between the project proponents, contractors and constructors (7.3 - 27). A periodic audit of the EIA system by the core environmental agency is needed to identify problems and deficiencies requiring legislative or administrative responses, and to develop appropriate strategies for addressing these needs, so that EIA effectiveness can be improved in the light of experience. It would be most appropriate for the core environmental agency to allocate the responsibility to an independent, multi-disciplinary expert panel (7.3 - 28).

The attitude, understanding, anticipation and commitments of governmental officials towards to EIA are important factors which affect the performance and effectiveness of the EIA system. In many countries, the priority of economic growth is much higher than that of environmental protection. To balance this inappropriate approach, the core environmental agency should set up an internal programme or mechanism to promote the awareness, function and benefits of EIA among various governmental agencies (7.3 - 29). A similar approach should also be taken to strengthen environmental education and awareness of the public. Professional organisations - such as environmental, chemical and civil engineers, are appropriate sponsors of environmental awareness programmes, and should be encouraged to assist in the development of training courses for their members and for the public at large (7.3 - 30). International resources (if available) should be used to improve the effectiveness of EIA implementation in practice (7.3 - 31).

7.5.8 RESOURCE AVAILABILITY

Attention should be given to the development of comprehensive data collection programmes, with clear priorities, for the collection and management of baseline data. The establishment of a central environmental database with an on-line data recording, storage and retrieval system which integrates environmental data originally scattered around various organisations and institutions is desirable and would be an important step forward in supporting the work of environmental management and protection, including EIA. This database should be made available to project proponents and consultants while conducting EIA studies. Alternatively, the core environmental agency should prepare national directorates of sources of information for EIA. Analytical and research laboratories should be established to assist data collection, carry out environmental research and permit enforcement activities. The utilisation of computing technologies, e.g. GIS, will improve the quality and presentation of the database. The core environmental agency should also promote tools and equipment for data collection and analysis, which are compatible, easily used, and not too labour or cost-intensive (7.3 - 32). The shortage

of adequate man-power or budgets for EIA implementation is one of the main shortcomings in both developed and developing countries. This may be resolved through the organisational and budgetary restructuring. Due to budgetary constraints, a need to explore "user fees" and other similar charges is considered appropriate as a partial funding resource for EIA activities. Project proponents should be expected to contribute to the expense of EIA administration and review, in addition to paying the costs of their EIA studies (7.3 - 33).

An EIA tracking system should be set up to record, monitor and report the status of EIA cases. An EIA status newsletter should be published on a regular basis. In addition, the core environmental agency should establish a national EIA repository and an EIS database for monitoring, auditing and research purposes (7.3 -34). This is an area where extra-national forces can make a significant contribution. International assistance, in terms of expertise, technologies, financial supports, are extremely helpful in establishing environmental protection facilities, and in developing the EIA system and indigenous EIA capabilities (7.3 - 35).

7.5.9 IMPLEMENTATION OF SEA

The integration of EIA analytical methods and techniques with planning and policy development on the one hand, and permitting, licensing and enforcement on the other hand, should be enhanced. The importance of upgrading project level EIA to a higher tier, SEA, is recognised for the wider assessment of the environmental impacts of government policies, plans and programmes, particularly in relation to sustainable development and Agenda 21. The requirements of SEA should be incorporated into the relevant regulations. Guidelines should be introduced to provide guidance on the procedure, on how to carry out the study and present the study results (7.3 - 36, 37). The results of SEA studies should be subject to an independent review and be available for public scrutiny (7.3 - 38). Channels should be provided for the public to be involved in the process of

SEA (7.3 - 39). The core environmental agency should coordinate SEA implementation and allocate sufficient resources to the research and development of SEA (7.3 - 40). Follow up SEA studies and implementation should be conducted by the competent national authorities so that the experience and effectiveness of SEA can be improved (7.3 - 41). Extra-national experiences on SEA (if available) will be beneficial to assist the improvement of national SEA practice (7.3 - 42).

7.5.10 INTERNATIONAL INTERACTIONS

Generally speaking, international interactions (if available) can exert a significant influence on providing impetus or assistance in the development and implementation of national EIA systems, in almost every aspect of EIA. Multilateral/bilateral donor agencies can assist the competent national authorities, especially in developing countries, to establish a regional EIA network to encourage inter-country cooperation and EIA information/experience exchange. If the institutionalisation and implementation of EIA in developing countries is to be sustained through indigenous resources, donor agencies should actively support experiments at developing less-costly but effective EIA. Moreover, to improve the effectiveness of public participation in developing countries, the international donor agencies and international NGOs should recognise the differences between developed and developing countries, in terms of political, cultural, and socio-economic conditions. international agencies should actively facilitate the evolution of public involvement in EIA implementation whilst not imposing its direction (7.3 - 43).

To summarise, the above conceptual framework provides useful guidance and can be used as a comprehensive reference model. Competent national authorities can examine their existing EIA system against this proposed model and then develop a strategy or action plan to improve the effectiveness and performance of their EIA systems, by taking into account the priorities, resource availability (domestic/international resources) and domestic socio-economic-cultural factors. For countries with no EIA system, the intention

of this proposed system is to offer a conceptual framework and guidance for the development of indigenous EIA systems suitable to the host countries.

7.6 FURTHER STUDY

This study has addressed the research objectives and answered the research questions stated in **Chapter 1** and **2**. Nevertheless, several aspects of EIA have been identified that are worthy of further study.

i. Audit of the EIA system

Studies should be carried out to develop the methodologies, mechanisms, and procedures for auditing of the EIA system. This would be an effective way to improve the performance of EIA in the light of experience. The competent national authorities should undertake preliminary review the objectives of the environmental policies and EIA programme, examine the effectiveness of EIA implementation in practice to see whether those objectives have been fulfilled, identify the constraints of EIA practice, set up targets to be achieved, prepare action plans and strategies, implement the action plans, review the results of implementing the action plans, and revise the environmental policies, regulations and EIA programmes, as well as restructure the institutional and administrative framework to meet the present and future needs.

ii. Post-EIA audit

It is recognised by many that the post-EIA audit has rarely been done in the past by competent national authorities, in either developed or developing countries. This makes the judgement on whether or how the mitigation and management measures stated in the EIA reports have been implemented properly and effectively, a very difficult or

impossible task. Thus, efforts should be dedicated to the research on how to conduct post-EIA audit and how to ensure that feedback from these audits leads to improve EIA effectiveness.

iii. Audit of EIA reports

Research should be carried to develop a mechanism or model for auditing EIA reports, so that the quality, accuracy, and presentation of EIA reports can be improved.

iv. Implication and application of environmental management system (e.g. British Standards 7750, and Eco-Management and Audit Scheme (EMAS)) in EIA

Over the past two years, an emerging issue in the field of environmental management is the application of environmental management systems in the business world. Environmental management systems are designated to be incorporated into cooperative structures and their associated activities, in order to ensure that industries maintain high environmental standards. The UK has introduced environmental management systems to industries through BS 7750 since 1992. In the European Union, an equivalent system, EMAS which is a voluntary scheme for industrial sites, was in existence from April 1995. There is some evidence that environmental management systems could be used as a substitute for the environmental mitigation and management plans in EIA (*Tuberfield 1994*). Studies should be carried out to develop mechanisms to link EIA with environmental management systems, by which the role of EIA could be extended beyond post-EIA monitoring to cover the integrated system of environmental management throughout the entire life cycle of development projects.

v. SEA and sustainability

After the 1992 Rio Earth Summit, sustainable development became a major internationally recognised issue. To achieve the sustainability agenda, the application of SEA can provide a useful and effective way forward for incorporating sustainability considerations into a higher level of decision-making. More work should be carried out to develop methodologies and procedures for SEA practice, and to study the implementation and effectiveness of SEA.

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APPENDIX A

QUESTIONNAIRE OF ENVIRONMENTAL ASSESSMENT FOR UK LOCAL AUTHORITIES

PLEASE RETURN COMPLETED QUESTIONNAIRE TO:

Wen-Shyan Leu
Division of Life Sciences
King's College London
Campden Hill Road
London, W8 7AH
Telephone : (071) 333-4090 Fax : (071) 333-4500

A. Today's date: _____ Name of the local authority: _____

B. Name and position of the contact person in the planning authority:

(1) Title: _____ (2) Name: _____
(3) Job title: _____ (4) Tel: _____

C. Environmental assessment (EA):

(1) When you receive an ES would you explain the process you go through to determine whether additional information is required from the applicant. (maximum of 100 words; a flow chart will be appreciated, if available)

_____
_____
_____
_____
_____
_____
_____
_____

(2) Are you aware of the EA procedure described in the Appendix 6 of the "Environmental assessment: a guide to the procedures" _____ Yes/No
if yes, have you used the procedure recommended in the Appendix 6? Yes/No
If no, what is the EA procedure adopted by the planning authority? (please attach the procedure, if possible)

_____
_____
_____
_____

(3) Is there a scoping meeting held for each EA in the EA process? ____ Yes/No
If yes, who organises the meeting and who is invited?

_____

_____

(4) Does the planning authority conduct the site visit associated with statutory bodies and the developer for each EA? _____ Yes/No

(5) Has the planning authority ever hired consultants to evaluate ESs?
____ Yes/No. if yes, how many cases out of the total are they? _____
what is the range of costs? _____

(6) What are the main shortcomings of the current EA systems according to your experiences? _____

_____

_____

D. Training programme for handling EA

(1) Have you ever participated any training programme in relation to EA?
_____ Yes/No
[If yes, please answer the following questions from (2) to (6)]

(2) Who organises the training course? _____
{i. The Planning Authority; ii. The DOE, iii. The DOE Regional Office
iv. Private Consultants, v. Others (please specify)}
Are they in-house training programmes? _____ Yes/No
If no, where are the training programmes been held? _____

(3) What is the duration of the training course?
_____ Months, _____ Weeks, _____ Days

(4) What aspects are covered?

(Please delete as appropriate)

- Legislation Yes/No
- Procedure Yes/No
- EA methodology Yes/No
- Decision making techniques Yes/No
- "Others" (please give detail) _____

(5) Are the training programmes held
-from time to time as necessary Yes/No
- on a regular basis at the same time each year? Yes/No

(6) A copy of current training guidelines and procedures would be appreciated if available

E. Development planning

(1) Has an EA study been incorporated in the formation of the local/regional plan (SEA)?
_____ Yes/No
If yes, who has conducted the study? _____
If no, will SEA be used in the future? _____ Yes/No

(2) Has the technology of geographical information systems (GIS) been used by the planning authority in the formation of the plan? _____ Yes/No
If yes, i) Do you consider GIS to a cost-effective tool _____ Yes/No
ii) What areas of application has the GIS also been used?
_____
_____

If no, i) Dose the planning authority have a plan to install the GIS in the near future: _____ Yes/No
If yes, when? _____ month, _____ year
If no, what is the main reason? _____ (e.g. too expensive)

Please return this questionnaire to the address given at the beginning

Data will be presented in a statistical form. Individual planning authority will not be identified without seeking their approval. Summary of the statistical results will be available if requested.

Thank you very much for your help

Wen-Shyan Leu
Division of Life Sciences
King's College London
Tel: (071) 333-4090
Fax: (071)333-4500

APPENDIX B

Project Appraisal, volume 10, number 2, June 1995, pages 91-102, Beech Tree Publishing, 10 Watford Close, Guildford, Surrey GU1 2EP, England

Local authority EA

An evaluation of the implementation of environmental assessment by UK local authorities

Wen-Shyan Leu, W Peter Williams and Anthony W Bark

The results of a 1993 survey into the current state of environmental assessment (EA) by UK local authorities (LAs) indicate that, five years after the establishment of recommended procedures and guidelines, the level of implementation is patchy both with respect to the number of ESs received and the range of guidelines adhered to by individual LAs. The observed variation in approach by LAs can lead to inequitable treatment of planning applications. To harmonise procedures in the future, it is recommended that: scoping and site visits become mandatory; independent review panels be organised by LAs; regular EA training programmes be held for planning officers; technical guidelines for conducting EA be introduced; and EA be incorporated in the preparation of local/regional plans.

Keywords: environmental assessment; local authority; implementation

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The authors are grateful to Professor P J Peterson of GEMS/UNEP, and Mr N Parkinson, King's College London, for their advice during the preparation of the questionnaire, and to Dr E Street, Kent County Council and Mr M Slater, Institute of Environmental Assessment, for their valuable comments on the questionnaire

THE CONCEPT OF environmental impact assessment (EIA) was first legally introduced by the US Congress in the National Environmental Policy Act (US Government, 1970). In Europe, the EC Directive 85/337/EEC on "The assessment of effects of certain public and private projects on the environment" (Commission of the European Communities, 1985), which was incorporated into UK law in July 1988, ensured that EIA would be considered as an integral part of environmental management and planning across the European Community.

To respond to the requirements of the EC Directive, the British Government has introduced legislation and a series of Circulars and Guidance Notes to implement EIA. In the British context, the terms EIA and environmental impact statement (EIS) are replaced by environmental assessment (EA) and environmental statement (ES) respectively.

According to the EC Directive, projects subject to EA are classified into two categories: i. projects under the planning control system, for which local authorities (LAs) are the competent authorities in the EA process; ii. projects for which the responsibility rests among various governmental departments in close consultation with the Department of the Environment (DOE). The intention of the UK Government was to ensure that the requirements of EA were integrated within the existing decision-making system, rather than by implementing primary legislation (Ball, 1991).

During the past few years, several studies have

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been undertaken in relation to EA. For example, the Institute of Environmental Assessment showed that 41% of the 131 local authorities surveyed had not received any ESs (Coles *et al*, 1992). Eighteen major recommendations were proposed by Wood and Jones (1991) to improve the EA procedure. Wood *et al* (1991) concluded that a significant number of ESs may not meet the minimum information requirements contained in the regulations.

Lee (1993) estimated that by 1990/91 40% of ESs were unsatisfactory. After five years of operation of the EA system, it was felt that it would be valuable to assess the level of implementation by UK LAs. There is some evidence which indicates that the adoption of EA by UK LAs has been incomplete, particularly in relation to the non-statutory guidelines, for example scoping (Wood, 1994) and site visits. The current study evaluates the present level of implementation of EA by LAs, especially in relation to non-statutory issues. Recommendations are made to improve the effectiveness and performance of the system.

Methodology

The major topics investigated were:

1. The implementation of EA by LAs:
   i. the awareness and adoption of the EA procedure recommended by the DOE,
   ii. the incorporation of scoping meetings in the EA procedure,
   iii. the incorporation of site visits in the EA procedure,
   iv. the use of private consultants for examining ESs.
2. Training programmes on EA:
   i. the organisers of the EA training programmes,
   ii. the duration of the EA training programmes,
   iii. the aspects covered in the EA training programmes.
3. Incorporation of EA in local/regional planning (strategic environmental assessment, SEA).

Questionnaires were prepared and distributed to various tiers of LA, including: County Councils in England (EC); District Councils in England (ED); Metropolitan Councils in England (EM); London Borough Councils (EL); County Councils in Wales (WC); District Councils in Wales (WD); Regional Councils in Scotland (SR); District Councils in Scotland (SD).

Questionnaires were sent to all regional local authorities (EC, EM, EL, WC and SR) and to a random selection of one-third (100) of ED. To ensure adequate returns for analysis from Scotland and Wales, questionnaires were sent to two-thirds of the district councils — 25 WD and 35 SD. In all 285 questionnaires were sent and the survey was conducted from May to July 1993.

The questionnaires were sent to the Directors of Planning at each LA, since they have overall responsibility for the implementation of EA and can provide an overall view of practices in operation within their councils. The questionnaires were either completed by the director or a delegated planning officer within the department. Those completing the form were also asked for their personal experience on training courses.

The survey returns were assessed numerically and are presented as percentage responses in a series of tables. Subsequent analysis of the tables was carried out to see if there were major differences in the variables either when examined in relation to the different tiers of local government or on a regional basis using the DOE regional classification.

Detailed statistical analysis of the data was not attempted as the results were based on survey returns and it was felt that simple numerical comparison was sufficient to provide a good general picture of EA implementation by LAs across the country. Survey returns clearly depend to a certain extent on the views of the respondent and cannot be relied on to give precise information; thus detailed correlation analysis on the data was not justified and would give a spurious impression of accuracy.

The analysis considers five hypotheses:

i. that the EA guidelines and procedures have not been fully implemented in the UK,
ii. that the implementation of EA has not been uniform in the UK and will vary according to the tier of local government involved and the number of ESs received by each authority,
iii. that the implementation of statutory EA requirements will be greater than the implementation of voluntary guidelines,
iv. that the implementation of EA has not been uniform in the UK and that variation will occur on a regional basis,
v. that the implementation of guidelines may be linked to the availability of trained staff, training programmes and the use of consultants.

These hypotheses are tested and suggestions are made to explain the findings.

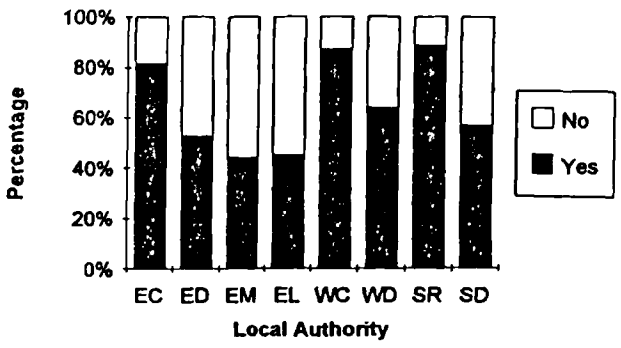

Figure 1. Return rate for survey

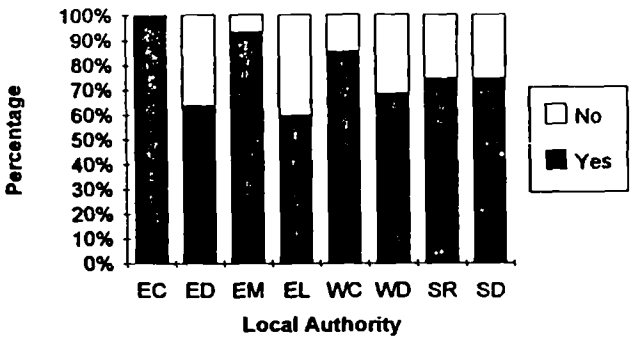

Figure 2. Percentage of LAs which have received ESs

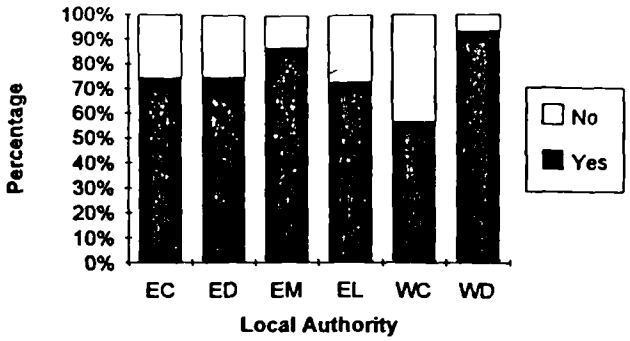

Figure 3. Awareness of recommended EA procedure

Results

Survey return rate

Out of 285 LAs, 167 (58.5%) responded to the survey (Figure 1). Higher than average return rates were recorded for the top tiers of LA — EC (82%), WC (87.5%) and SR (88.9%).

LAs receiving ESs

The results show that 23.3% of the 167 LAs responding had received no ESs up to July 1993, five years after the Town and Country Planning (Assessment of Environmental Effects) Regulations 1988 (TCPR, 1988) for England and Wales and the Environmental Assessment (Scotland) Regulations 1988 for Scotland came into effect (Figure 2).

Awareness of recommended EA procedure

A recommended EA procedure is described in the DOE's document *Environmental Assessment: a Guide to the Procedures* (DOE, 1989). This was published to provide further guidance to LAs and developers following the DOE Circular 15/88 which was issued as formal guidance directed principally at LAs (DOE, 1988). Appendix 6 of the 1989 document provides a useful flow chart of the recommended procedure which consists of three main stages:

- application by the developer to the LA for opinion on need for EA,
- application to the Secretary of State for direction where the developer disagrees with the LA and
- submission of ES to LA in conjunction with planning application.

The DOE produced a guide to EA procedures in 1989, yet the survey showed that 23.3% and 17.4% respectively of responding English and Welsh local authorities were not aware of, or familiar with, these recommendations

Figure 3 shows that 23.3% and 17.4% respectively of responding English and Welsh LAs were not aware of, or familiar with, this recommended EA procedure. WC appeared to have the lowest figure of awareness (57.1%). The recommended EA procedure used in Scotland is similar to that adopted in England and Wales, with some differences in detail but no information was requested on this aspect from Scotland.

Adoption of recommended EA procedure

The adoption rate of the recommended EA procedure by responding LAs which have received ESs throughout England and Wales was 72.9%. A very low level of adoption was recorded for WC (Figure 4).

Establishment of handbook/guidelines

It was found that several LAs had prepared their own EA guidelines or handbook based on the TCPR 1988 and DOE Circular 15/88 and SDD Circular 13/88 (Scottish Development Department, 1988). Three EC, one WC and one SR produced their own EA guidelines. One ED followed the handbook set up by the EC in which it is located.

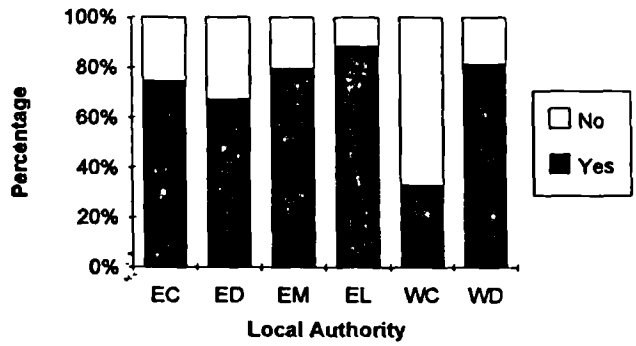

Figure 4. Adoption of recommended EA procedure by LAs which have received ESs

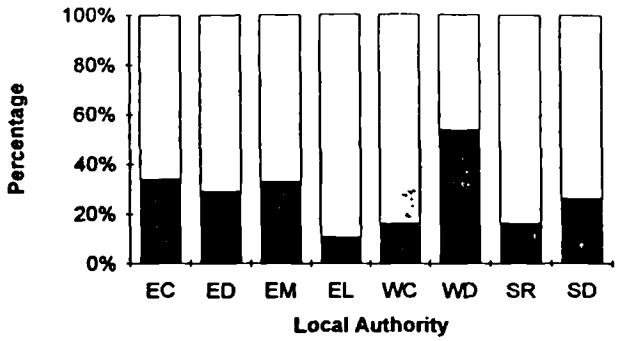

Figure 5. Incorporation of scoping meetings in EA procedure by LAs which have received ESs

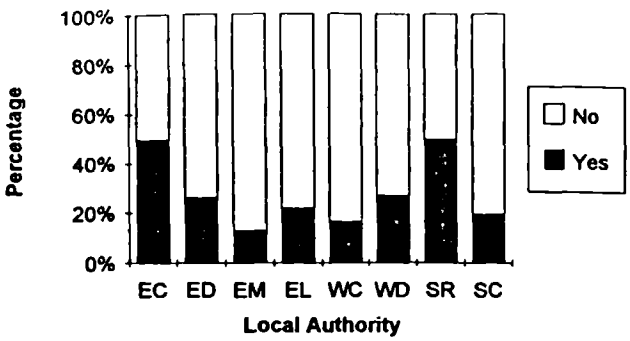

Figure 7. Use of consultants for examining ESs by LAs which have received ESs

Scoping meetings and site visits

Under the current EA system, the duty of identifying the scope and contents of an EA study lies with the applicants. From the survey, it was found that only 30.5% of the LAs receiving ESs had held scoping meetings with applicants at an early stage of the EA process (Figure 5). The figure was particularly low in EL (11.1%). WD had the highest figure (54.5%).

In total, 72.7% of the LAs receiving ESs did not conduct site visits in association with statutory bodies and applicants for projects subject to EA (Figure 6). On average, Wales had the lowest figure for conducting site visits (17.6%). None of the sample WC had conducted site visits.

Hiring consultants to examine ESs

The survey results indicate that only 30.5% of the responding LAs in the UK have ever engaged private consultants to help them to assess ESs. Within this group, some hired consultants only to evaluate specific parts of ESs. EC and SR had above average figures (50%) (Figure 7). The costs of hiring consultants to assess ESs range from less than £1,000 to over £20,000. The amount of money spent depends on the degree of the consultants' involvement in examining ESs. Figure 8 gives a general picture of the current expenditure range. The most common range of costs involved is between £1,000 and £5,000.

EIA training

The survey has shown that only 38.3% of the planning officers who completed the questionnaires had ever participated in any training course relating to EA (Figure 9). The figure was particularly low in EL. The figure refers only to those planning officers completing the questionnaires. Although an individual respondent may not have received formal training, officers within his department may have. However, if it is assumed that the 167 planning officers completing the questionnaires represent a random cross section, 38.3% gives a good indication of the current level of formal training in EA procedures among planning officers. Most of the training programmes were held from time to time as necessary, not on a regular basis.

Training programmes on EA may be organised by LAs, private consultants or academic institutions. Most programmes (75%) were organised by academic institutions (Figure 10). The survey showed that the 72% of the training courses attended by planning officers were one-day short courses although some half-day, two-day and three-day courses had also been attended (Figure 11).

The survey revealed that various topics had been covered in the EA training programmes, including legislation, methodologies, procedures and decision-making. Some respondents referred to other aspects, for example, scoping, preparation of planning com-

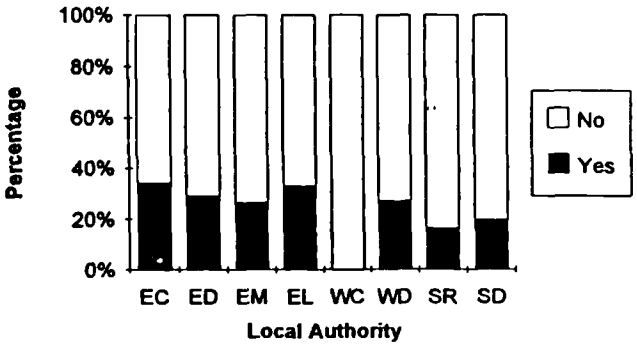

Figure 6. Incorporation of site visits in EA procedure by LAs which have received ESs

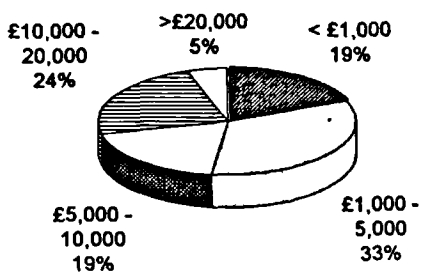

Figure 8. Range of costs of hiring consultants to examine ESs

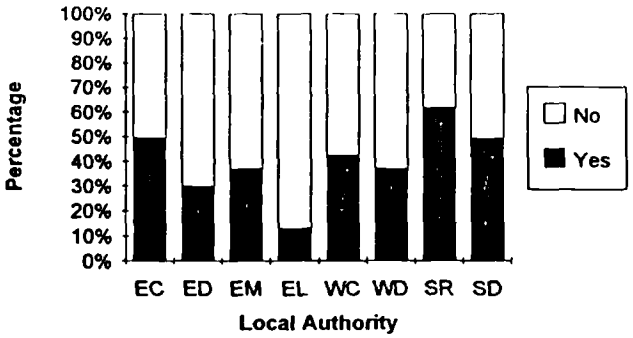

Figure 9. Participation of planning officers in EA training programmes

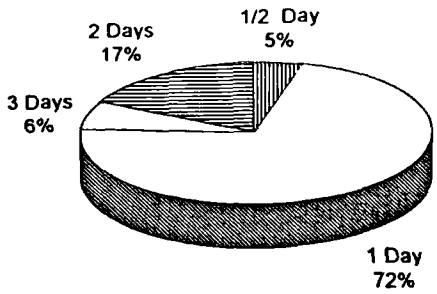

Figure 11. Duration of EA training programmes

mittee reports, review of ESs, and EA and local planning policy (Figure 12).

EA in local/regional planning (SEA)

Although the statutory requirements refer only to project-level EA, to be fully effective, EA should also be employed at strategic level, SEA. Currently, statutory EA study is restricted to project level which may occur too late in the planning process to ensure that all important alternatives and impacts are adequately considered on a strategic basis.

It is a statutory requirement that LAs prepare their own local/regional plans, following the *Planning Policy Guidance Note 12* (DOE, 1992). The survey investigated whether LAs had incorporated or intended to incorporate EA into their preparation of local or regional plans. The result indicated that only 6.6% of the responding LAs had incorporated EA studies while preparing such plans (Figure 13). Higher figures were shown for EC and WC.

Discussion of results

The results of the survey indicate that there is considerable variation in the number of environmental statements received by different categories of LA. An examination of statements received by different tiers of local government administrations show that more of the larger authorities (EC, SR, WC and EM) had received ESs than the smaller local authorities (88.6% compared with 67%). The smallest percentage of LAs receiving an ES was in the London area (60%). This may result from the fact that not many major developments, listed in Schedule 1 or 2, and subject to EA, were undertaken in the London area, and that some big projects in the Greater London area were directly under the jurisdiction of the Department of Transport, DOE or other government department, rather than London Borough Councils.

The results indicate that there is a surprisingly high proportion of LAs which are not aware of, or familiar with, the recommended EA procedure. This is probably primarily due to the fact that many LAs (23.3% of respondents) had not received an ES and would not, therefore, have been required to carry out the procedures. Secondly, even if ESs have been received, EA is implemented through secondary legislation and is regarded as part of the planning application process; consequently many LAs were often not aware of the special requirements of EA.

The survey revealed that most responding LAs (72.9%) that received ESs adopted the recommended procedure, but there is some resistance by planning officers, for example:

- Two planning officers were of the opinion that EA was an unnecessary burden to both LAs and applicants, and that it was waste of time.

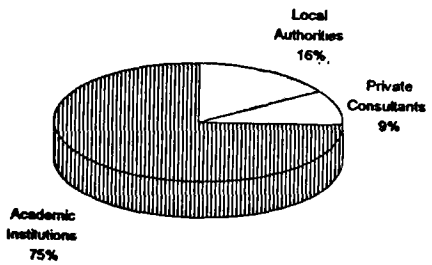

Figure 10. Organisers of EA training programmes

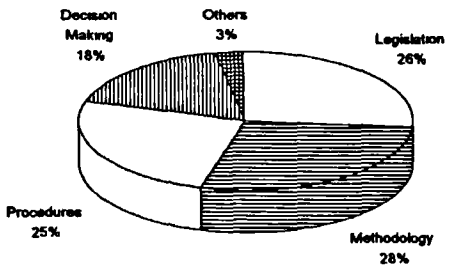

Figure 12. Aspects covered in EA training programmes

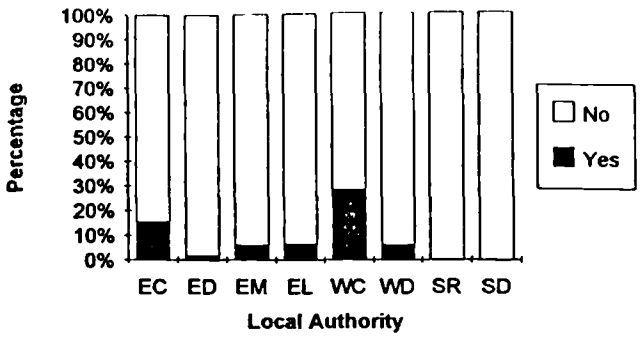

Figure 13. Incorporation of EA in local/regional planning (SEA)

- Two planning officers expressed the view that EA is not taken seriously in practice.

The survey revealed a low level of use of scoping meetings by LAs (30.5% on average). This possible shortcoming could have resulted from the following factors:

- the absence in the relevant regulations of a clear statutory requirement for either the applicants or the LAs to arrange scoping meetings to set the terms of reference for an EA,
- a negative attitude on the part of applicants towards preparing an EA. They may be reluctant to increase project costs to meet the requirements of the EA regulations.

There was no obvious difference between the tiers of LA (County, Region and District) and their awareness or adoption of the recommended EA procedure, nor in their use of site visits and scoping meetings.

The use by LAs of consultants (30.5%), the number of planning officers who had received training in EA (38.3%), and the use and/or development of training courses by local authorities was very low (16%). It appears that one of the major shortcomings of the current system is the failure of the Government to provide formal training programmes on EA for planning officers. The DOE tends to leave the responsibility for training planning staff to LAs, but, due to lack of financial resources, most of the LAs do not organise formal training programmes, nor are they able to support staff participation in external training programmes relating to EA.

Given the very small number of ESs received per LA per year, most of the planning staff lack experience and knowledge of EA. It is also recognised that planning staff may change from time to time. Moreover, unlike the Netherlands, ESs are not examined by independent expert committees. It is clear that, without formal guidance or training programmes on EA being organised for planning staff, it is unrealistic to expect ESs to be evaluated in an objective or uniform way.

One of the interesting developments in some countries, for example the USA and the Netherlands, is the formal requirement for the incorporation of EA into regional and strategic environmental planning. It is clear that there is a growing realisation that EA is an important element to be considered when LAs prepare their local/regional plans. Given the goal of achieving sustainable development, it seems desirable to extend the scope of project EA to the higher tier, strategic environmental assessment (SEA), which is the EA of policies, plans and programmes.

The DOE tends to leave the training of planning staff to LAs, but, due to lack of financial resources, most LAs do not organise formal training programmes, nor are they able to support staff participation in related external training programmes

This development of SEA has been done on a voluntary basis in the UK because the Government advice does not require a full ES of local and regional plans. However, 19.2% of the responding LAs expressed the intention of using SEA in strategic regional planning in the near future. Although the total number of positive responses to the use of EA in local/regional planning was small, there is some evidence that large LAs are more likely it than small ones (approximately 12.8% and 3.7% respectively).

The preliminary analysis of the survey results confirms hypothesis (i) that EA guidelines and procedures have not been fully implemented in the UK and (ii) that there is considerable variation amongst different tiers of local government in the number of ESs received and the level of implementation of procedures.

If the results obtained from the higher tier authorities (EC, EM, WC, SR) are compared with those from the lower tier (ED, EL, WD, SD) some differences emerge. Firstly, the proportion of higher tier authorities receiving ESs (94.7%) is well above the average for LAs as a whole (76.7%). The higher tier authorities also engage in more training programmes (47.6%) compared with the lower tier LAs (32.7%). Similarly they make more use of consultants: higher tier LAs 37.3%; lower tier LAs 24.6%. These results suggest that the experience and workload of the higher tier of LA leads them to adopt a more active role in training staff and in hiring consultants.

Since only part of the observed variation can be explained in terms of LA tier, it was decided to analyse the results further to explore the validity of hypotheses (iii-v) — the relative importance given to statutory requirements and non-statutory guidelines; the existence of any regional variations which could be interpreted in terms of ES activity, population density or environmental sensitivity; and the linkage

Table 1. Awareness/adoption and scoping /site visits

DOE region	AID	Returns (no of LAs)	No of ESs (rank)	No of LAs received ESs	Awareness of EA procedure %(rank)	Adoption of EA procedure % (rank)*	Inclusion of scoping meetings % (rank)*	Inclusion of site visits % (rank)*
South East	SE	19	72 (1)	13	73.7 (6)	76.9 (6)	23.1 (5)	38.5 (3)
Eastern	ER	16	63 (2)	12	62.5 (9)	66.7 (7)	16.7 (7)	25.0 (7)
North West	NW	17	51 (3)	13	76.5 (5)	84.6 (4)	23.1 (5)	23.1 (8)
East Midlands	EM	11	47 (4)	10	91.0 (1)	80.0 (5)	50.0 (3)	30.0 (5)
South West	SW	11	45 (5)	8	64.0 (8)	50.0 (9)	62.5 (1)	50.0 (1)
Northern	NR	8	35 (6)	7	87.5 (3)	85.7 (2)	57.1 (2)	28.6 (6)
York & Humberside	YH	11	34 (7)	11	91.0 (1)	54.5 (8)	9.0 (9)	18.2 (9)
West Midlands	WM	8	34 (7)	7	87.5 (3)	85.7 (2)	42.9 (4)	42.9 (2)
London	L	15	11 (9)	9	73.3 (7)	88.9 (1)	11.1 (8)	33.3 (4)
England					76.7	74.4	30.0	31.1
Welsh County	**WC**							
Clwyd	1	5	14	4	80.0	75.0	0	0
Gwent	3	4	12	4	75.0	75.0	75.0	0
South Glamorgan	7	2	5	2	100.0	100.0	50.0	0
Mid Glamorgan	5	3	4	2	100.0	50.0	0	50.0
Powys	6	2	3	2	50.0	50.0	50.0	50.0
West Glamorgan	8	1	1	1	100.0	100.0	100.0	0
Gwynedd	4	3	2	2	66.7	0	50.0	50.0
Dyfed	2	3	0	0	100.0	0	0	0
Wales					82.6	64.7	41.2	17.6
Scottish region	**SR**							
Strathclyde	8	12	21	9	na	na	22.2	22.2
Highland	6	1	15	1	na	na	0	0
Fife	4	3	9	3	na	na	33.0	0
Grampian	5	3	9	2	na	na	50.0	0
Central	2	3	9	2	na	na	0	0
Borders	1	2	7	1	na	na	100.0	0
Dumfires & Galloway	3	1	3	1	na	na	0	100.0
Lothian	7	1	2	1	na	na	0	0
Tayside	9	2	2	1	na	na	0	100.0
Scotland					na	na	23.8	19.0

Notes: AID = authority identification code
* = related only to LAs which have received ESs
na = not applicable

between implementation of the guidelines and the development of training programmes or the use of consultants.

Detailed analysis

Regional comparison of EA implementation

The UK is not uniform in terms of legislation, population density and major planning developments. The survey results have been analysed to examine any regional variation based on the DOE regional classification: East Midlands (EM), Eastern (ER), Northern (NR), North West (NW), South East (SE), South West (SW), West Midlands (WM), Yorkshire & Humberside (YH), and London (L). For Wales and Scotland the geographical grouping is based on the original administrative regions.

The data on ESs received by LAs were provided by the Institute of Environmental Assessment (IEA, 1993). Although the Institute has the most up-to-date records of ESs received by LAs, this is not yet fully comprehensive. The data on population density of DOE regions, WC and SR were taken from the *Municipal Year Book* (Rusbridge, 1993).

Sequential examination of linkages

The questions of this survey of EA in the UK can be grouped into four categories which may be taken in sequence. The first or primary category consists of awareness and adoption of the recommended EA procedure. The second is related to non-statutory actions taken by LAs in the EA procedure, including scoping meetings and site visits. The third category is

Table 2. Awareness/adoption and scoping/site visits (combined ranking)

DOE region	No of ESs (ranking)	Awareness and adoption (combined ranking)	Scoping and site visits (combined ranking)
SE	1	6	5
ER	2	8	8
NW	3	5	6
EM	4	3	4
SW	5	9	1
NR	6	1	3
YH	7	7	9
WM	7	1	2
L	9	4	7

related to how LAs overcome manpower or expertise problems while handling EA cases, by means of participation of local planning officers in EA training programmes or hiring consultants. The fourth category provides an indication of how LAs may be intending to look ahead to the incorporation of EA into regional and strategic planning (SEA).

It was decided to examine the possible links between these stages in the EA process with the number of ESs received in the regions, and with each other. For the purpose of comparison, the results of all parameters have been ranked according to their corresponding percentage score individually and as combined categories. The discussion predominantly centres on the regional variation in England but refers to Wales and Scotland where the data for those two countries allows meaningful comparison.

Results of detailed analysis

Awareness and adoption

It was thought that variation in awareness and adoption of the recommended EA procedure may be related to the number of ESs received in the regions. The results are shown individually in Table 1 and ranked as a combined category (1) in Table 2. Examination of the data showed that the levels of awareness and adoption were not clearly linked with the number of ESs received in the regions. For example, very few ESs were received by the London Boroughs but the level of adoption and awareness were similar to other regions such as the North West and South East which had received many more ESs.

Examination of the data from Wales in Table 1 is interesting. The Welsh countries appear to be divided into two groups: group 1 (WC1, WC3, WC5, WC7) and group 2 (WC2, WC4, WC6, WC8). In WC group 1, the 14 LA respondents had received a total of 35 ESs and had high figures — 85.7% awareness and 75% adoption. These counties contain urban regions, and are more industrialised than the rest of Wales.

In WC group 2, the nine LA respondents had received only 6 ESs. Although awareness (77.8%) was similar to Group 1, the percentage adoption was relatively low (40%). Welsh counties in group 2 are mainly rural areas.

Comparing Wales as a whole with the various English regions, it was found that YH and Wales yield similar results. Both of them showed relatively high figures of awareness, 91% and 82.6%, but relatively low figures of adoption, 54.5% and 64.7% respectively.

The apparent similarity between Wales and YH has no immediately obvious explanation, although both have considerable traditional industry and mining activities together with areas of outstanding landscape value and National Parks. A more detailed regional study of the relationship between the handling of EAs and the types of development under consideration may provide valuable insights.

Scoping meetings and site visits

The variation in the levels of scoping meetings and site visits may be related to the number of ESs received in the regions, or the levels of awareness and adoption. The results in Tables 1 and 2 show that the ranking levels of scoping meetings and site visits either separately or as a combined category were not similar to the ranking order of the number of ESs received in the region. However, Table 2 shows a marked similarity in the ranking order of awareness and adoption on one hand and scoping meetings and site visits on the other. Only the SW region appeared exceptional with low levels of awareness and adoption (rank 9) and high levels of scoping and site visits (rank 1). This situation may result from the high proportion of environmentally sensitive areas within the region.

Hiring consultants and EA training

The variation in hiring consultants and EA training may be related to the number of ESs received in the region, or the levels of awareness and adoption. The results are shown individually in Table 3 and as a combined category in Table 4. In Table 3, no clear linkage can be seen between the rankings of the three variables.

However, Table 4 shows that a high ranking for hiring consultants and EA training is generally associated with a high ranking for the number of ESs received, although ER and WM do not conform to this pattern. ER has a high ranking of ESs and low ranking for training and consultants, whilst WM has a low ranking of ESs and high ranking for training and consultants.

In Table 3, the results show that more EA training activities have taken place in urban regions, such as SE, WM and NW. It can also be seen that consultants have been more commonly used in these urban re-

Table 3. Hiring consultants and EA training

DOE region	AID	No of ESs (rank)	Use of consultants for examining ESs % (rank)*	Participation in EA training programmes % (rank)
South East	SE	72 (1)	84.6 (1)	57.9 (2)
Eastern	ER	63 (2)	16.7 (8)	18.8 (7)
North West	NW	51 (3)	38.5 (2)	47.1 (3)
East Midlands	EM	47 (4)	20.0 (7)	27.3 (5)
South West	SW	45 (5)	25.0 (5)	36.4 (4)
Northern	NR	35 (6)	0.0 (9)	25.0 (6)
York & Humberside	YH	34 (7)	27.3 (4)	9.0 (9)
West Midlands	WM	34 (7)	28.6 (3)	75.0 (1)
London	L	11 (9)	22.2 (6)	13.3 (8)
England			32.2	34.5
Wales			23.5	39.1
Scotland			28.6	53.6

Notes: AID = authority identification code
* related only to LAs which have received ESs

gions. Wales and especially Scotland have apparently paid much attention to staff training in relation to EA, showing a higher average figure than that of England. However, the percentage of LAs in Wales hiring consultants to examine ESs was lower than for England and Scotland. This may result from a lack of financial resources in local authorities in Wales, since higher costs will be incurred in EA examination if private consultants are engaged.

From Table 3, it can be seen that, although the average figure of EA training is relatively low in the UK as a whole (38.3%), it tends to be somewhat higher than the figure for hiring consultants (30.5%). This may reflect a preference by LAs for overcoming manpower or expertise problems by means of staff training rather than hiring consultants, probably due to the lower costs involved and the development and retention of expertise within the LA.

Whereas the results have shown that the levels of hiring consultants and EA training appear to be linked with the number of ESs received, no such association was apparent with the levels of awareness and adoption (Table 4). For example, the SE region which was ranked 1 for the number of ESs and had high levels of hiring consultants and EA training (rank 1), had comparatively low levels of awareness and adoption (rank 6). In contrast NR had relatively high levels of awareness and adoption (rank 1) but low levels of EA training and hiring consultants (rank 9). Overall it appears that it is the volume of ESs to be dealt with that determines the introduction of EA training programmes or the hiring of consultants.

Table 4. Hiring consultants/training and awareness/adoption (combined ranking)

DOE region	No of ESs (ranking)	Hiring consultants and EA training (combined ranking)	Awareness and adoption (combined ranking)
SE	1	1	6
ER	2	7	8
NW	3	3	5
EM	4	5	3
SW	5	4	9
NR	6	9	1
YH	7	6	7
WM	7	2	1
L	9	7	4

Population density and number of ESs

The survey results showed a marked variation in the number of ESs received by different regions. Various possible socio-economic and geographical indicators were examined to see if they were correlated with the level of EA activity thus indicated. Potential indicators included gross domestic product, area of region, and population density of the region.

It would have been interesting to examine in detail the relative environmental sensitivity of regions and the growth of new industry but it was not possible to devise suitable measures of these parameters for use in this survey. Since none of the parameters examined showed any obvious correlation with the survey data, the discussion here is restricted to an examination of population density combined with some general com-

Whereas the results have shown that the levels of hiring consultants and EA training appear to be linked with the number of ESs received, no such association was apparent with the levels of awareness and adoption

Table 5. Relationship between population density and number of ESs received

DOE region	AID	Population density P/Ha (rank)	No of ESs received by sample LAs (rank)
London	L	40.21 (1)	11 (9)
North West	NW	4.87 (2)	51 (3)
South East	SE	4.12 (3)	72 (1)
West Midlands	WM	4.04 (4)	34 (7)
York & Humberside	YH	3.24 (5)	34 (7)
Northern	NR	2.99 (6)	35 (6)
Eastern	ER	2.80 (7)	63 (2)
East Midlands	EM	2.62 (8)	47 (4)
South West	SW	2.0 (9)	45 (5)
Wales	**WC**		
South Glamorgan	7	7.15 (1)	5 (3)
Mid Glamorgan	5	3.99 (2)	4 (4)
West Glamorgan	8	3.36 (3)	1 (6)
Gwent	3	2.46 (4)	12 (2)
Clwyd	1	1.30 (5)	13 (1)
Gwynedd	4	0.49 (6)	1 (6)
Dyfed	2	0.47 (7)	0 (8)
Powys	6	0.18 (8)	2 (5)
Scotland	**SR**		
Lothian	7	4.35 (1)	2 (8)
Fife	4	2.65 (2)	9 (3)
Strathclyde	8	1.66 (3)	21 (1)
Central	2	1.03 (4)	9 (3)
Grampian	5	0.58 (5)	9 (3)
Tayside	9	0.53 (6)	2 (8)
Dumfries & Galloway	3	0.23 (7)	3 (7)
Borders	1	0.22 (8)	7 (6)
Highland	6	0.08 (9)	15 (2)

Note: AID = authority identification code

ments on regional differences.

Table 5 shows the English regions, Welsh counties and Scottish regional counties in order of population density and gives the corresponding figures for the number of ESs received by the sample LAs.

In England, the NW and SE have a high population density with a relatively high corresponding number of ESs. However, ER, EM, and SW received a relatively high number of ESs but have low population densities. There are many environmentally sensitive and nature conservation areas in these three regions and it can be concluded that EAs need to be conducted if major developments are proposed here despite the low population densities.

The link between the population density of the regions and the number of ESs received was no more obvious in Wales and Scotland. WC8 has a relatively high population density and received a low number of ESs, whereas WC4, WC2 and WC6 have low population densities and received a low number of ESs. A possible explanation of this result is that these three regions are remote rural areas where few major developments are carried out. It can be seen that SR8 received the highest number of ESs which may be because it is the major industrialised region in Scotland. It is interesting that the Highland region received a high number of statements despite its rural status.

The results thus indicate considerable regional variation but this is not clearly correlated with population density, areas of environmental sensitivity or the number of major developments planned in a particular region, although some of the variation could be explained in these terms. It will be useful to examine the situation in a further five years to see if a clear pattern has emerged. The present position may represent a transitory phase reflecting the short period of EA implementation.

Further information and comment

In the survey the responding planning officers were invited to give their personal observations on the current status of EA activities and procedures in their LA. Many helpful and useful comments were received and are summarised here.

The main difficulties reported in implementing EA procedures were the lack of manpower to examine ESs, and insufficient funds to engage consultants. Thirty one planning officers considered that the quality of ESs received was poor in general and the contents were biased or incomplete. Three planning officers thought that the lack of independent review procedures for ESs was the major shortcoming of the current system. Seven planning officers expressed their concerns about lack of guidance from the Government on the assessment of an ES and its accuracy. Apart from these difficulties, the lack of a formal format for an ES and lack of a formal review procedure that can be followed were seen as further problems which made the objective evaluation of ESs even more difficult.

It has become clear, subsequent to the survey, that the DOE has also recognised the need for the production of guidelines to assist LAs in the evaluation of ESs. In 1993, the DOE commissioned a research project on the evaluation of environmental information for planning projects which resulted in a report on good practice being published (DOE, 1994a). Based on this research, the DOE has also published a good-practice guide (DOE, 1994b).

This guide is a useful step forward and overcomes some of the criticisms raised by some of the respondents to the survey. It provides guidance on: the initial vetting of the ES and the planning application; the process of consultation; reviewing the adequacy of the ES; evaluating individual environmental impacts; the decision-making process; and the presentation of findings and recommendations. The guide is, however, very general and does not give advice on particular types of project proposal; LAs still receive no guidance on the technical issues associated with particular developments.

Conclusions

The regional and sequential analysis of the questionnaire returns has revealed some interesting information in relation to the original hypotheses. The analysis confirms that there is a high level of awareness and adoption by LAs which have received ESs but there is no obvious correlation with geographical region of the UK or with the population density of the region. A much closer relationship is apparent when examining sequential components of the procedures — high adoption and awareness are linked with high use of scoping meetings and site visits.

Similarly, good linkages are shown between the work load expressed as the number of ESs received and the implementation of staff training and the hiring of consultants. Since some of the results are linked neither with work load nor awareness and adoption, the conclusion must be made that the variation is dependent on differences in approach adopted by local planning officers in response to local conditions.

The survey has demonstrated an inconsistent approach to the implementation of EA in the country as a whole, with LAs adopting a wide variety of policies and actions. This inconsistency of implementation gives a wide regional and LA tier variation. This is perhaps the most serious shortcoming of the UK system, since EA procedures will not be implemented equitably for projects independent of the region or tier of local authority to which they are submitted. It is suggested that this shortcoming may have arisen because EA has been integrated into the existing decision-making process, rather than through primary legislation.

Other shortcomings in the current operation of the EA system include a low level of implementation of scoping and site visits, the lack of independent review of ESs, and a lack of formal EA training programmes for planning officers promoted by central government. There is also a widespread failure to incorporate EA in the formation of local/regional development plans. In addition, some planning officers expressed concern at the lack of provisions to define a formal format for an ES and poor quality of ESs.

Recommendations

In view of these shortcomings a number of recommendations can be made that would improve the consistency and quality of EA in the UK. It is recommended that:

Scoping and site visits become mandatory Ideally, scoping meetings and site visits need to be conducted at an early stage of the EA process. A site visit is an important step in obtaining the general picture of the proposed project site environment, which would provide valuable information in determining the scope of the EA study.

Independent EA review panels be established The review bodies should be established by the competent appropriate authority to carry out scoping, site visits, examining ESs and preparing planning committee reports for Local Councils which make the final decisions. They should consist of subject experts, representatives from the LA and relevant agencies, statutory consultees and local people.

In this way, the EA system can be implemented consistently and the possible delays in the decision-making process can be reduced or avoided. Moreover, owing to a lack of formal EA training programmes and the frequently low number of ESs received by LAs to date, many planning officers lack experience in handling EAs. The establishment of independent EA review bodies would compensate for this shortcoming, and LAs would not need to seek costly assistance from private consultants.

EA technical guidelines be introduced The DOE should provide EA technical guidelines for the major types of development which are subject to EA. These should cover all Schedule 1 projects — those for which EA is mandatory. Such guidelines would alert the LA to the major environmental issues which are likely to arise from specific developments and thus improve the scoping phase of the EA.

Guidance should also be included for the LA and project proponent on how to initiate EA studies to obtain critical technical information and how to prepare and present the ESs. It would be advantageous if the format of the ES was clearly defined so that a consistency and uniform presentation of ESs can be maintained. It is believed that such guidelines would provide invaluable further assistance in improving the quality of ESs.

Formal EA training programmes be promoted Central government should promote and hold formal training programmes on a regular basis for those staff responsible for handling EAs. In this way, the EA capabilities of planning officers could be strengthened and thus EA effectiveness improved.

LAs be required to incorporate EA in development plans EA regulations should be amended and upgraded to assess the environmental impact of regional policy decisions, major strategic plans and programmes (SEA). Currently, the incorporation of EA in local/regional planning is quite extensive in the USA, especially in California (Therivel *et al*, 1992). In Europe, the Netherlands is the leading country in this field. In the UK, although the DOE produced a document on policy appraisal and the environment in 1991 (DOE, 1991), SEA has not yet been formally introduced.

EA is designed to safeguard the local, regional and national environment from unplanned and unsustainable development. At present the variations in procedures within the UK can lead, and probably already

have led, to inconsistencies in the handling of development proposals nationwide. It is believed that adoption of these recommendations would lead to a more consistent and higher quality implementation of EA in the UK.

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